

**Status Report on Technical Studies
for the
Storage and Conveyance Refinement
Process**

**Delta Simulation Model Studies
of
Alternatives
3A, 3B**

October 2, 1997



M e m o r a n d u m

Date : October 6, 1997

To : Stein Buer
CALFEDFrancis Chung
Delta Modeling Section
Modeling Support Branch

From : Department of Water Resources

Subject: Model Studies of CALFED Alternatives

Per your request, two additional Delta alternatives, as described in **Status Reports on Technical Studies for the Storage and Conveyance Refinement Process**, dated March 20, 1997, and **Facility Descriptions and Updated Cost Estimates For the In-Delta Project**, dated June 20, 1997, have been analyzed with Department of Water Resources' Delta Simulation Model (DWRDSM1). Presented in this report are Deltawide hydraulics and water quality for CALFED alternatives 3A and 3B which assume a 5,000 cfs isolated facility and South Delta flow control structures. Alternative 3B assumes the in-Delta storage component. Specifically, this report includes:

- A brief description of these Delta alternatives and the Delta hydrology used in the studies and a summary of the operating assumptions used.
- Delta modeling results in terms of Delta flows and velocities, Delta circulation patterns, Delta salinity, and water levels in the south Delta.

The style of presentation of the modeling results is consistent with that entailed in CALFED's report, **Status Report on Technical Studies for the Storage and Conveyance Refinement Process: Delta Simulation Model Studies of Alternatives 1A, 1C, 2B, 2D, 2E, 3E**, dated August 4, 1997.

These model results, as well as future model outputs, will be posted on a WWW page, <http://wwwdelmod.water.ca.gov/calfed>. If you have further questions, please call me at (916) 653-5601.

Attachment

cc: Kathy Kelly
George Barnes

SURNAME

[Signature]

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Introduction

DWR Modeling Support Branch has been conducting computer modeling studies to support CALFED. Using DWRDSM1, Delta simulations of two of CALFED's alternatives have been completed. The purpose of this report is to present and describe recent results related to this process.

Presented first is a brief description of the new alternatives modeled, a description of the Delta hydrology used, and a summary of the operating assumptions used. The format of the presentation is intended to be consistent with that shown in **Status Report on Technical Studies for the Storage and Conveyance Refinement Process: Delta Simulation Model Studies of Alternatives 1A, 1C, 2B, 2D, 2E, 3E**, August 4, 1997.

Alternative 3A assumed a 5,000 cfs isolated facility with an intake on the Sacramento River at Hood. North Delta channel improvements were assumed the same as in Alternative 3E and south Delta facilities were the same as in Alternative 1C (Figure 1).

Alternative 3B assumed the same features as Alternative 3A but also included the in-Delta storage component. This component assumed the use of flooded Bacon Island, Woodward Island, and Victoria Islands as storage and conveyance to Clifton Court Forebay (Figure 2). Diversion pumps of 5,000 cfs capacity were assumed installed on Middle River at the northeast corner of Bacon Island, Middle River at Woodward Canal, and Old River at Woodward Canal.

The hydrology, boundary tide, and forebay intake gate operation used for these studies were described in the earlier report of August 4, 1997, namely the hydrology from study 472B and the 19-year mean tide at Martinez were used. Table 1 lists the monthly average Delta inflows and Table 2 lists the monthly average salinity at the Delta boundaries. Table 3 summarizes the operation of the Delta Cross Channel and the south Delta flow control and fish control structures. The strategy of operating the isolated facility and the in-Delta storage component is shown in Figure 3 and the monthly flow in the isolated facility is listed in Table 4.

Following this brief summary of the assumptions used in this study, Delta modeling results are then presented with respect to four parameters: Delta flows and velocities, Delta circulation patterns, Delta salinity, and water levels in the south Delta. Delta circulation patterns are presented using average flow directions and mass tracking studies. Delta salinity is shown using end of month total dissolved solids and the X2 location.

Delta Modeling Background

Figure 1
CalFed
Alternative 3A

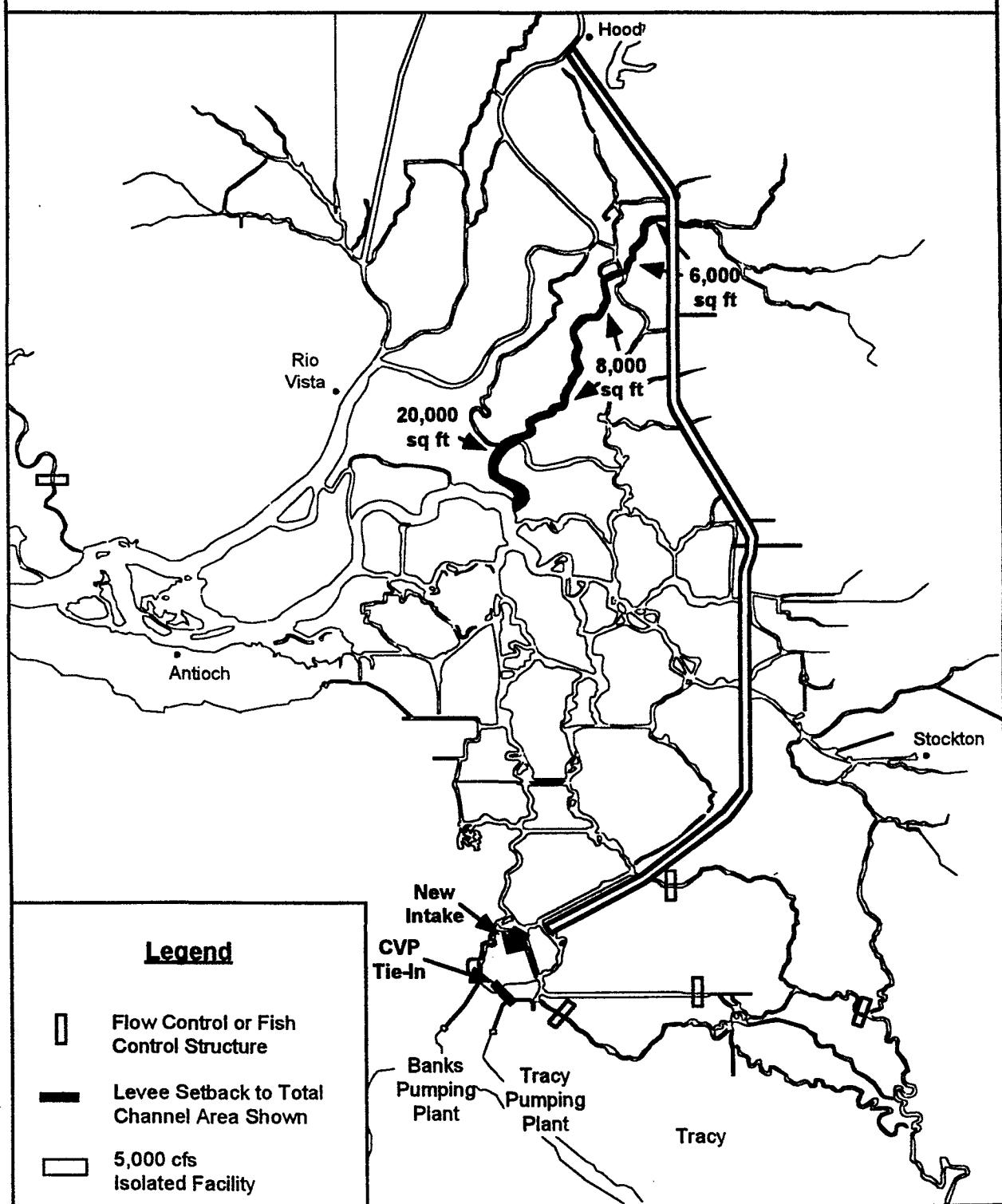


Figure 2
CalFed
Alternative 3B

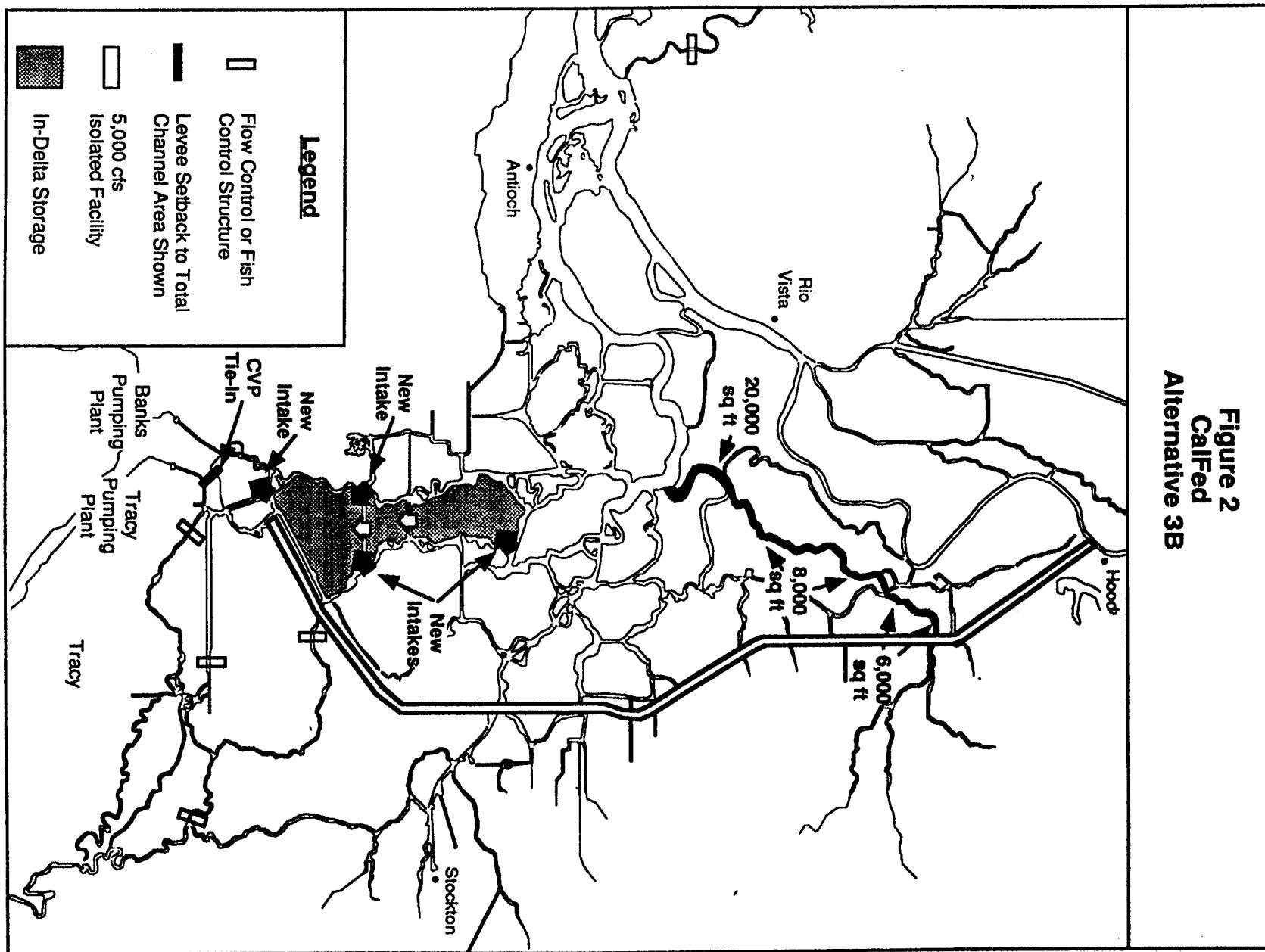


Table 1
Delta Hydrology from DWRSIM Study 472B
Water Years 1976 - 1991
(Values in cfs)

Sacramento River Inflow at I Street

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	21,403	19,125	16,833	16,833	19,593	18,394	9,478	10,035	15,108	16,963	6,619	9,529
1977	9,335	8,336	8,213	8,668	12,969	7,953	9,092	7,725	10,571	6,928	6,619	7,882
1978	7,758	6,941	12,311	43,049	49,600	46,741	38,703	21,061	15,898	17,207	12,230	14,016
1979	15,369	14,386	14,182	23,289	40,316	32,543	17,814	12,458	19,763	19,760	11,124	10,873
1980	13,287	16,385	20,899	60,451	69,453	36,479	19,814	14,914	14,957	14,247	10,815	14,117
1981	15,190	13,092	15,678	27,030	28,720	32,576	17,108	8,896	14,621	21,842	12,246	10,134
1982	12,360	32,351	68,599	51,165	63,386	69,087	75,843	38,431	24,418	14,897	13,726	23,494
1983	25,403	39,006	55,410	59,150	80,058	81,935	68,298	54,515	55,576	23,484	19,793	27,494
1984	25,176	62,685	82,944	47,359	36,004	36,576	18,150	13,531	15,747	24,314	15,467	12,184
1985	17,532	33,897	23,875	16,865	18,393	17,337	12,436	13,222	13,360	22,655	17,353	10,268
1986	11,108	9,798	15,792	23,631	88,142	72,535	20,889	13,271	12,604	15,792	12,035	13,629
1987	13,190	11,764	13,840	16,540	22,062	27,778	12,772	8,490	17,125	20,850	11,466	8,083
1988	10,522	8,453	15,906	25,599	14,186	11,889	9,697	9,465	12,755	11,645	9,108	8,033
1989	8,864	8,672	8,912	12,067	12,969	42,155	23,629	14,474	12,755	22,883	15,841	12,033
1990	12,734	11,596	12,669	21,403	16,185	14,653	12,251	7,741	15,024	14,149	6,392	8,621
1991	10,311	8,134	7,839	7,449	12,152	29,746	15,377	8,815	9,327	9,042	8,392	8,016

San Joaquin River at Vernalis

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	4,098	1,832	1,805	1,529	1,965	1,708	1,983	1,870	1,328	1,366	1,366	1,395
1977	2,814	2,101	1,610	1,155	1,200	1,236	1,983	1,870	1,344	1,415	1,269	1,294
1978	1,350	1,328	1,366	3,269	6,937	10,978	14,940	10,831	7,092	2,814	1,822	2,722
1979	4,245	1,933	1,708	3,968	8,953	8,652	5,411	5,156	2,134	1,691	1,675	1,765
1980	2,830	1,748	1,838	13,710	24,009	14,572	6,739	6,619	6,184	3,708	1,724	2,605
1981	5,090	2,084	2,098	2,976	2,677	2,960	3,664	2,683	1,563	1,431	1,496	1,546
1982	2,000	1,613	1,919	9,286	15,977	15,304	27,023	15,158	9,865	3,236	1,838	3,949
1983	12,442	8,638	19,061	24,867	35,274	41,114	20,738	19,077	36,451	13,596	1,659	6,504
1984	12,116	13,562	21,500	15,190	9,718	6,001	5,344	5,156	2,134	1,789	1,887	1,983
1985	2,000	1,781	1,691	1,480	2,260	2,293	2,807	2,683	1,630	1,447	1,545	1,546
1986	2,000	1,597	1,545	1,838	21,592	26,493	9,898	8,164	7,697	1,805	1,773	1,916
1987	3,464	1,714	1,545	1,464	1,791	1,919	2,017	1,870	1,412	1,447	1,480	1,479
1988	1,789	1,277	1,138	1,122	1,182	1,301	1,983	1,870	1,344	1,382	1,431	1,378
1989	1,317	1,193	1,187	1,155	1,217	1,626	2,420	1,887	1,311	1,366	1,382	1,378
1990	1,317	1,227	1,138	1,122	1,217	1,382	1,983	1,935	1,244	1,269	1,220	1,344
1991	1,285	1,210	1,073	976	939	2,374	2,437	1,984	1,395	1,301	1,106	1,294

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Table 1 (cont.)
Delta Hydrology from DWRSIM Study 472B
Water Years 1976 - 1991
 (Values in cfs)

Yolo Bypass Inflow

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	114	0	65	16	17	179	118	81	101	98	423	218
1977	49	17	33	49	35	114	235	667	202	195	98	50
1978	49	151	732	14,361	6,658	16,816	1,042	49	134	325	130	101
1979	49	67	16	732	608	195	50	65	67	195	49	50
1980	49	67	1,057	31,519	42,228	15,125	50	390	403	309	228	50
1981	49	34	98	455	556	146	50	65	67	163	65	50
1982	16	3,311	23,306	20,801	21,418	5,172	36,485	374	67	146	49	17
1983	98	1,647	10,620	20,882	56,606	113,503	15,360	3,253	958	49	49	34
1984	33	5,395	46,595	15,011	887	537	118	81	67	81	49	50
1985	1,382	1,059	33	146	191	16	50	81	67	49	49	50
1986	33	218	667	33	86,543	55,263	1,143	179	67	49	49	50
1987	49	34	81	114	209	374	134	81	67	49	49	50
1988	33	67	439	1,236	87	65	84	65	50	49	49	50
1989	49	50	163	65	87	455	202	65	67	49	49	17
1990	0	34	33	260	730	33	286	49	67	49	49	50
1991	98	0	49	33	70	683	50	65	67	49	49	50

Delta Outflow

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	10,327	7,428	8,278	9,579	12,448	12,002	7,344	6,196	6,890	4,001	2,992	3,008
1977	5,448	3,496	3,497	4,733	11,596	6,017	6,958	6,896	6,890	4,001	2,992	3,008
1978	5,448	3,496	4,879	54,271	56,432	70,486	45,913	19,549	11,209	8,002	4,472	3,613
1979	5,107	4,907	4,505	17,125	46,001	32,137	16,503	10,783	10,789	6,505	4,001	3,008
1980	4,586	5,495	9,823	107,420	137,864	61,590	18,520	13,889	10,957	8,002	4,554	4,084
1981	5,611	4,504	5,399	23,013	23,087	29,160	14,587	6,229	6,773	4,993	3,497	3,008
1982	4,001	23,410	81,626	80,813	99,008	89,124	139,520	43,700	19,461	8,002	4,733	12,285
1983	22,688	41,863	83,692	108,152	176,458	248,619	99,170	71,396	81,994	22,883	7,693	21,965
1984	26,184	77,894	153,397	74,552	42,089	34,641	16,352	11,368	8,302	8,002	5,432	3,075
1985	6,245	23,629	11,921	10,295	12,848	13,824	10,352	9,465	5,748	4,993	3,497	3,008
1986	4,001	4,504	6,148	13,531	208,586	153,690	21,881	12,978	10,117	8,002	5,253	3,848
1987	4,342	4,504	4,505	8,701	19,402	24,200	9,982	5,139	7,966	4,993	3,497	3,008
1988	4,001	4,504	5,985	15,450	11,005	7,920	7,747	6,375	6,890	4,001	2,992	3,008
1989	5,448	3,496	3,497	4,749	11,509	31,307	19,259	10,148	5,142	4,993	3,497	3,412
1990	4,001	4,504	4,505	10,978	11,300	9,742	9,831	5,790	6,890	4,001	2,992	3,008
1991	5,448	3,496	3,497	4,749	11,561	22,834	12,234	5,822	5,932	4,001	2,992	3,008

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Table 1 (cont.)
Delta Hydrology from DWRSIM Study 472B
Water Years 1976 - 1991
(Values in cfs)

Combined SWP and CVP Exports

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	14,702	12,823	9,677	8,945	8,988	7,253	3,025	3,123	5,916	10,376	2,960	6,453
1977	5,546	6,218	5,611	5,351	2,156	2,553	2,991	1,464	1,479	390	2,114	4,588
1978	2,326	4,218	9,693	14,458	10,396	8,376	10,705	10,831	8,302	7,920	6,489	11,108
1979	12,962	10,890	10,539	14,507	9,371	11,905	6,924	5,985	8,168	11,872	6,652	8,369
1980	10,750	12,117	14,507	9,335	8,658	7,010	8,151	7,497	8,201	7,449	6,359	11,713
1981	13,515	9,932	11,889	8,977	9,092	8,490	5,479	3,545	5,983	14,718	7,741	7,176
1982	9,433	14,570	14,507	11,173	10,014	9,612	10,588	11,693	12,806	7,514	9,205	14,890
1983	14,718	11,495	9,417	8,961	9,040	7,872	9,764	9,742	11,176	11,954	12,637	12,050
1984	10,295	9,529	9,026	6,359	7,197	9,514	6,890	6,148	6,823	14,897	9,807	9,848
1985	13,889	14,587	14,182	8,945	9,075	7,253	4,101	4,261	5,378	14,897	12,409	7,008
1986	7,839	6,924	12,133	14,458	10,553	10,067	10,403	8,229	7,781	6,538	6,603	10,772
1987	11,157	8,285	10,327	9,823	5,894	7,091	3,563	2,830	6,621	13,125	6,489	4,689
1988	7,253	4,924	11,937	14,474	4,311	4,586	3,025	3,009	3,731	5,074	4,733	4,739
1989	3,399	5,832	6,440	8,766	2,921	14,458	5,647	3,968	5,109	14,897	10,636	8,840
1990	8,929	7,613	8,424	12,572	7,458	5,790	3,496	2,765	5,815	7,351	1,789	5,227
1991	4,928	4,840	4,570	3,643	1,356	11,986	4,269	2,976	1,815	2,212	3,708	4,453

Contra Costa Canal Diversions

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	228	185	146	114	104	195	0	146	252	163	163	286
1977	244	67	49	114	156	195	185	244	252	325	276	286
1978	244	202	179	146	156	98	118	228	286	504	537	471
1979	407	185	179	114	104	195	0	228	471	325	358	269
1980	244	185	146	114	70	98	0	228	420	325	358	269
1981	244	185	146	114	104	98	0	228	437	325	358	269
1982	244	185	146	114	104	33	0	228	487	325	358	269
1983	228	185	146	114	104	98	0	228	403	325	358	286
1984	228	151	179	130	104	98	0	228	437	325	358	286
1985	228	185	146	114	104	98	0	228	437	325	358	269
1986	244	151	146	114	52	146	0	228	420	325	358	269
1987	228	185	146	114	104	98	0	228	437	325	342	269
1988	98	67	98	114	104	98	0	228	286	146	228	101
1989	211	185	146	114	104	98	118	228	487	504	537	269
1990	211	185	146	114	104	195	0	244	252	244	228	168
1991	179	202	179	146	156	195	185	244	252	325	276	286

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Table 1 (cont.)
Delta Hydrology from DWRSIM Study 472B
Water Years 1976 - 1991
(Values in cfs)

Delta Channel Depletions

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	748	857	927	16	382	1,203	1,462	2,732	3,731	4,147	2,456	1,546
1977	1,155	807	846	-114	469	813	1,613	1,854	3,764	4,147	2,879	1,546
1978	1,269	672	130	-5,009	-1,739	-1,838	471	2,114	3,798	4,147	2,879	1,748
1979	1,317	639	894	-2,196	-2,431	98	1,160	2,179	3,798	4,098	2,879	1,832
1980	846	723	-49	-2,683	-3,460	211	1,126	2,049	3,764	3,936	2,879	1,832
1981	1,301	857	764	-846	139	-358	1,344	2,277	3,798	4,147	2,879	1,697
1982	862	118	-472	-4,359	-695	-2,830	84	2,114	3,697	4,147	2,879	1,176
1983	797	-807	-797	-4,570	-3,338	-4,554	34	1,968	3,764	4,147	2,846	1,479
1984	1,187	67	-1,952	-211	-174	520	1,378	2,358	3,781	4,147	2,862	1,815
1985	878	-302	65	-455	-156	-537	1,378	2,309	3,697	4,147	2,879	1,697
1986	1,138	454	146	-1,464	-5,737	-1,659	1,042	2,082	3,798	4,131	2,879	1,563
1987	1,301	874	829	-195	-556	-276	1,529	2,423	3,798	4,147	2,879	1,832
1988	1,122	689	260	-1,496	261	813	1,176	1,984	3,479	4,147	2,879	1,832
1989	1,269	689	634	-195	35	-146	1,546	2,440	3,748	4,147	2,814	958
1990	960	723	894	-504	-261	748	1,529	1,155	3,596	4,147	2,879	1,815
1991	1,220	840	813	16	348	-813	1,395	2,017	3,042	4,147	2,814	1,832

Department of Water Resources, Delta Modeling Section

Table 2
Monthly Average Salinity at Model Boundaries
(Values in TDS and derived from DWR's Model Saldiff - Version 4 for Study 472B)

Carquinez Strait at Martinez

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	14078	12939	12788	11995	10855	10254	11327	13170	14121	15375	17708	19326
1977	19255	18353	18268	17278	13686	12206	13477	13718	13995	15326	17688	19317
1978	19252	18351	17466	7251	5660	4687	5648	7311	9400	11582	13983	16612
1979	17930	17285	16634	11262	6726	6550	7882	9740	10984	12360	14965	17511
1980	18954	17622	13797	2039	303	3652	6915	8919	10284	11800	14021	16398
1981	17323	17013	16261	9770	7659	7234	8263	10915	13398	14836	16764	18572
1982	19764	11039	3780	3386	2041	2539	526	4098	7373	10081	13441	12977
1983	9094	6675	3450	1586	299	161	1629	3812	3556	6098	9848	9422
1984	7774	4112	296	3301	5602	6487	7821	9649	11405	12671	13991	16357
1985	17491	10165	9317	10582	10389	9773	10310	11348	12837	15036	16852	18610
1986	19787	18844	16503	11929	904	161	3790	8608	10565	12042	13860	16098
1987	17977	17925	17066	14431	9966	7812	9168	12217	13828	14480	16618	18511
1988	19743	18827	16584	11384	9942	11208	12406	13299	14083	15360	17702	19323
1989	19254	18352	18268	17270	13706	8335	7668	9557	12393	15113	16892	18441
1990	19450	18700	17343	13533	11044	10963	11407	12594	14080	15368	17705	19325
1991	19255	18353	18268	17270	13689	9049	8965	11538	14031	15789	17891	19407
Avg	17274	15285	13506	10267	7654	6942	7950	10031	11646	13332	15621	17263

San Joaquin River at Vernalis

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	276	444	438	479	437	470	390	371	406	406	406	503
1977	351	416	482	581	581	560	371	386	406	406	453	524
1978	541	539	529	313	205	153	130	156	206	346	406	360
1979	273	437	467	279	174	178	238	231	383	406	406	447
1980	349	459	445	127	95	129	205	207	223	297	406	368
1981	238	397	377	301	354	342	273	310	406	406	406	477
1982	419	484	435	163	121	125	90	126	164	321	406	292
1983	133	169	105	89	74	69	106	109	76	133	406	212
1984	134	130	98	119	161	216	216	209	371	406	406	425
1985	418	456	465	503	408	397	328	314	405	406	406	476
1986	417	488	494	446	99	90	166	184	197	406	406	429
1987	306	459	476	491	460	440	400	383	406	406	406	488
1988	428	550	581	581	581	547	386	387	406	406	406	509
1989	550	573	576	581	581	482	358	406	406	406	406	497
1990	544	562	581	581	581	526	397	406	406	406	436	509
1991	559	568	607	638	682	390	368	406	406	406	466	517
Avg	371	446	447	392	350	320	276	287	330	373	415	440

Department of Water Resources, Delta Modeling Section

Table 3
Operation of Delta Facilities
Alternatives 3A, 3B

Delta Cross Channel

Year	Oct	Nov	Nov	Dec	Dec	Jan	Jan	Feb	Mar	Apr	Apr	May	Jun	Jun	Jul	Aug	Sep
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
1976	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1977	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1978	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1979	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1980	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1981	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1982	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1983	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1984	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1985	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1986	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1987	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1988	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1989	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1990	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X
1991	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X

Suisun Marsh Salinity Control Structure

Year	Oct	Nov	Nov	Dec	Dec	Jan	Jan	Feb	Mar	Apr	Apr	May	Jun	Jun	Jul	Aug	Sep
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
1976	O	O	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N
1977	O	O	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N
1978	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1979	O	O	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N
1980	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1981	O	O	O	O	O	O	O	O	N	O	O	O	N	N	N	N	N
1982	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1983	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1984	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1985	O	O	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N
1986	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1987	O	O	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N
1988	O	O	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N
1989	O	O	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N
1990	O	O	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N
1991	O	O	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N

Note: "X" Denotes Delta Cross Channel Closed, "O" denotes Delta Cross Channel Open
 "N" Denotes Suisun Marsh Sal.Control Struct. Not Operating, "O" Denotes Operating.

Nov A : Nov 1-10, Nov B: Nov 11-30, Dec A: Dec 1-16, Dec B: Dec 17-31,
 Jan A: 1-20, Jan B: Jan 21-31, Apr A: Apr 1-15, Apr B: Apr 16-30, Jun A: Jun 1-4, Jun B: Jun 5-30.

Table 3 (cont.)
Operation of Delta Facilities
Alternatives 3A, 3B

South Delta Flow and Fish Control Structures

Year	Oct	Nov	Nov	Dec	Dec	Jan	Jan	Feb	Mar	Apr	Apr	May	Jun	Jun	Jul	Aug	Sep
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
1976	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1977	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1978	1	2	2	3	3	3	3	3	3	4	4	4	5	5	5	5	5
1979	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1980	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1981	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1982	1	2	2	3	3	3	3	3	3	3	3	4	5	5	5	5	5
1983	4	3	3	3	3	3	3	3	3	3	3	3	3	3	5	5	5
1984	4	3	3	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1985	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1986	1	2	2	3	3	3	3	3	3	4	4	1	5	5	5	5	5
1987	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1988	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1989	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1990	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5
1991	1	2	2	3	3	3	3	3	3	4	1	1	5	5	5	5	5

- Note:
- 1 Old River, Middle River, Old River at Head Structures Operating
 - 2 Old River at Head Structure Operating
 - 3 No Structures Operating
 - 4 Old River and Middle River Structures Operating
 - 5 Old River, Middle River, and Grant Line Canal Structures Operating

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Figure 3
Logic for Isolated Facility Flow (values in cfs)

SWP+CVP Pumping(QEXP)		IF Flow	West Canal Diversion	MR @ Bacon Diversion	MR, OR at Woodward Div.
Alt 3A: Apr-Jun	QEXP<5,000	QEXP	0	0	0
	QEXP>5,000	5,000	QEXP-5,000	0	0
Oct-Mar; Jul-Sep	Qexp<1,000	0	QEXP	0	0
	1,000<QEXP<6,000	QEXP-1,000	1,000	0	0
	QEXP>6,000	5,000	QEXP-5,000	0	0
Alt 3B Apr-Jun	QEXP<5,000	QEXP	0	0	0
	5,000<QEXP<10,000	5,000	0	QEXP-5,000	0
	QEXP>10,000	5,000	0	5,000	(QEXP-10,000)/2
Oct-Mar; Jul-Sep	QEXP<1,000	0	QEXP	0	0
	1,000<QEXP<6,000	QEXP-1,000	1,000	0	0
	6,000<QEXP<11,000	5,000	1,000	QEXP-6,000	0
	QEXP>11,000	5,000	1,000	5,000	(QEXP-11,000)/2

Table 4
Average Flow in Isolated Facility for Alternatives 3A&3B
(Values in cfs, Hydrology from DWRSIM Study 472B)

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	5000	5000	5000	5000	5000	5000	3025	3123	5000	5000	1960	5000
1977	4546	5000	4611	4351	1233	1553	2991	1464	1479	0	1114	3588
1978	1326	3218	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
1979	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
1980	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
1981	5000	5000	5000	5000	5000	5000	5000	3545	5000	5000	5000	5000
1982	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
1983	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
1984	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
1985	5000	5000	5000	5000	5000	5000	4101	4261	5000	5000	5000	5000
1986	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
1987	5000	5000	5000	5000	5000	5000	3563	2830	5000	5000	5000	3689
1988	5000	3924	5000	5000	3465	3586	3025	3009	3731	4074	3733	3739
1989	2399	4832	5000	5000	2025	5000	5000	3968	5000	5000	5000	5000
1990	5000	5000	5000	5000	4790	3496	2765	5000	5000	789	4227	
1991	3928	3840	3570	2643	404	5000	4269	2976	1815	1212	2708	3453

Delta Flows

Figure 4
Output Locations for Monthly Average Flows
(Arrows show sign convention for positive flow values)

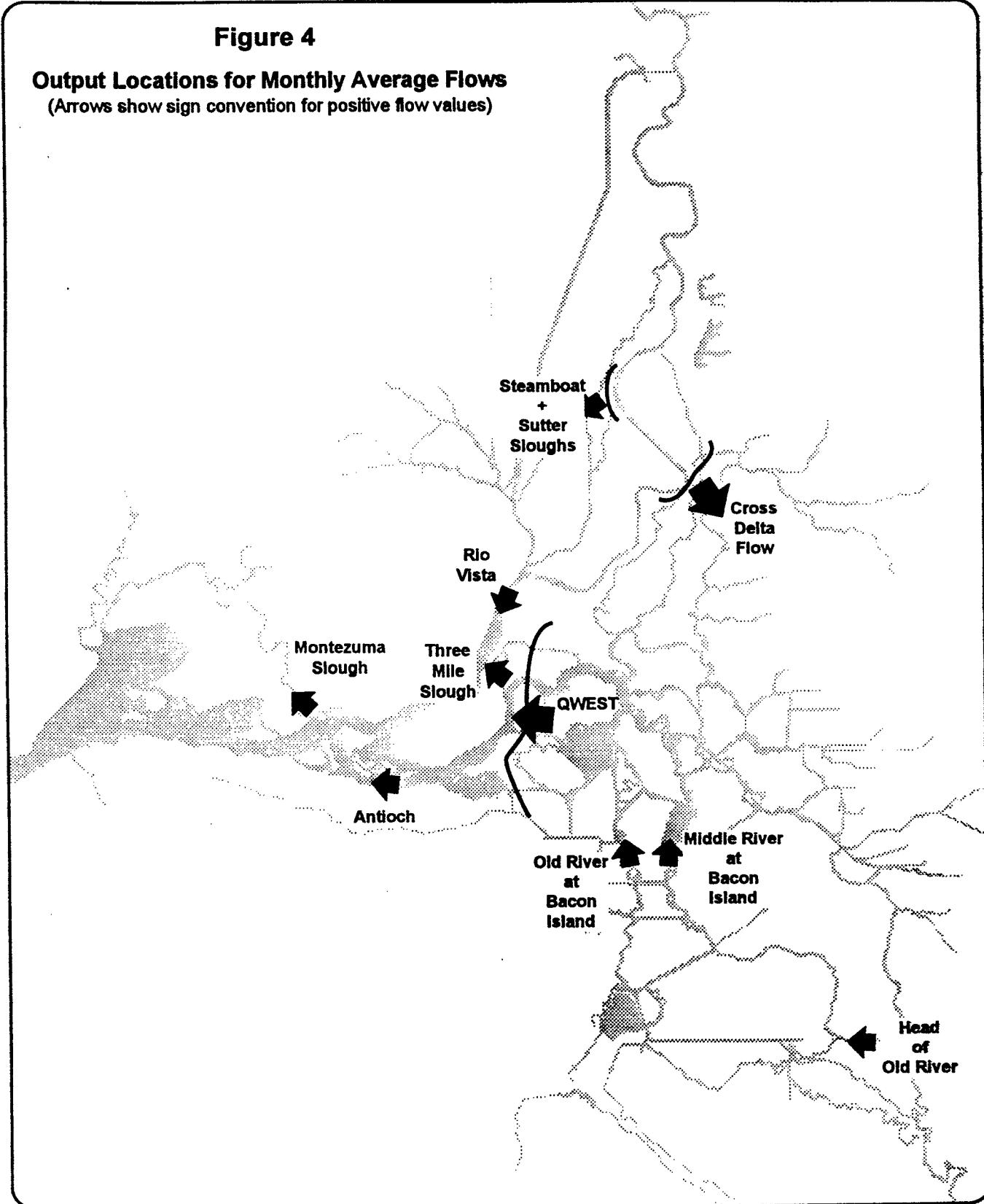


Table 5
Average Flows in CFS
Alternative 3A
QWEST

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	-2709	-3357	-3357	-619	-619	396	396	721	1621
1977	2435	1447	1447	1268	1268	1601	1601	2592	1413
1978	1216	993	993	-1393	-1393	3998	3998	10411	16076
1979	-2276	-1910	-1910	-2016	-2016	-406	-406	12782	7459
1980	-1200	-3011	-3011	-4265	-4265	23990	23990	36718	18349
1981	-1686	-1135	-1135	-2544	-2544	3505	3505	2539	5158
1982	-1001	-3348	-3348	2759	2759	16390	16390	25180	25236
1983	5647	9163	9163	26106	26106	35506	35506	51284	60513
1984	9509	20289	20289	35285	35285	21935	21935	14302	6977
1985	-4473	-2633	-2633	-3782	-3782	691	691	1610	3462
1986	70	918	918	-2973	-2973	-2676	-2676	43832	36226
1987	-1209	-67	-67	-1808	-1808	-422	-422	4702	4517
1988	436	1351	1351	-3177	-3177	-3676	-3676	2706	1924
1989	1187	857	857	554	554	-502	-502	2920	-1196
1990	-1277	-5	-5	-752	-752	-2839	-2839	1381	2416
1991	1190	813	813	752	752	1327	1327	2442	490
Avg	366	1273	1273	2712	2712	6176	6176	13508	11915
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	2943	2940	1988	210	210	-941	1338	199	
1977	2650	2648	2383	1042	1042	1677	1275	457	
1978	15170	15170	6778	3710	3710	2451	1753	-2501	
1979	6546	6477	5661	53	53	-509	1823	-561	
1980	6740	6626	6228	3958	3958	3910	2284	-2105	
1981	5427	5412	2967	532	532	-3193	831	-108	
1982	39010	39010	14751	4233	4233	3707	1136	-2334	
1983	27723	27723	24888	37273	37273	12381	303	3523	
1984	6145	6077	5421	1077	1077	-2001	888	-1508	
1985	4413	4408	3332	560	560	-3557	-1892	-152	
1986	7915	7915	6913	5282	5282	3368	2509	-1923	
1987	3347	3345	1820	-364	-364	-2386	1294	532	
1988	3034	3029	2217	1168	1168	1513	1365	579	
1989	4159	4154	2829	509	509	-3732	-1029	-1326	
1990	3388	3386	2606	348	348	646	1315	501	
1991	3942	3938	2152	1159	1159	1430	1228	366	
Avg	8910	8891	5808	3797	3797	923	1026	-398	

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Table 6
Average Flows in CFS
Alternative 3A
Three Mile Slough

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	-1407	-1441	-1441	-829	-829	-638	-638	-725	-480
1977	36	-100	-100	-147	-147	-113	-113	-238	-220
1978	-255	-207	-207	-821	-821	-1550	-1550	-293	538
1979	-1076	-964	-964	-976	-976	-1108	-1108	737	99
1980	-786	-1264	-1264	-1734	-1734	758	758	1998	1428
1981	-957	-759	-759	-1147	-1147	469	469	-732	-318
1982	-702	-2026	-2026	-3260	-3260	216	216	1224	1872
1983	5	129	129	2350	2350	3502	3502	3344	293
1984	736	1204	1204	1025	1025	1709	1709	1188	-129
1985	-1630	-1859	-1859	-1703	-1703	-594	-594	-521	-99
1986	-450	-260	-260	-1268	-1268	-1504	-1504	-1562	1236
1987	-778	-499	-499	-923	-923	-786	-786	-101	-289
1988	-360	-161	-161	-1294	-1294	-1801	-1801	-189	-203
1989	-257	-231	-231	-297	-297	-603	-603	-149	-1858
1990	-764	-485	-485	-669	-669	-1458	-1458	-494	-182
1991	-257	-251	-251	-265	-265	-179	-179	-262	-1133
Avg	-556	-573	-573	-747	-747	-289	-289	202	35
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	70	71	-115	-562	-562	-677	-70	-368	
1977	24	26	-39	-359	-359	-48	-90	-302	
1978	1337	1337	415	80	80	-66	-55	-1047	
1979	487	477	548	-775	-775	-706	-13	-546	
1980	441	426	555	157	157	286	69	-978	
1981	289	289	124	-484	-484	-1273	-217	-438	
1982	2726	2726	1306	-197	-197	234	-205	-1403	
1983	1978	1978	2484	4811	4811	1568	-559	-431	
1984	395	386	462	-421	-421	-1131	-301	-778	
1985	266	268	48	-432	-432	-1362	-879	-452	
1986	585	585	768	517	517	144	89	-921	
1987	31	33	-100	-744	-744	-1079	-113	-289	
1988	77	78	-60	-337	-337	-93	-70	-277	
1989	-208	-206	-111	-412	-412	-1395	-662	-735	
1990	53	54	65	-532	-532	-294	-81	-296	
Avg	57	59	-47	-269	-269	-109	-103	-326	
	538	537	394	3	3	-375	-204	-599	

Table 7
Average Flows in CFS
Alternative 3A
San Joaquin River at Antioch

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	-1472	-2093	-2093	-2	-2	850	850	1248	1858
1977	2124	1306	1306	1175	1175	1510	1510	2589	1400
1978	1189	969	969	-745	-745	5566	5566	10512	15258
1979	-1419	-1127	-1127	-1237	-1237	626	626	11820	7060
1980	-623	-1919	-1919	-2653	-2653	22896	22896	34327	16513
1981	-957	-589	-589	-1574	-1574	3790	3790	3062	5246
1982	-520	-1471	-1471	5857	5857	16072	16072	23514	22998
1983	5358	8781	8781	23337	23337	31653	31653	47405	59676
1984	8420	18682	18682	33769	33769	19798	19798	12774	6828
1985	-3018	-909	-909	-2213	-2213	1111	1111	1933	3348
1986	267	958	958	-1856	-1856	-1272	-1272	45028	34518
1987	-659	212	212	-1075	-1075	196	196	4573	4570
1988	541	1281	1281	-2039	-2039	-1968	-1968	2652	1876
1989	1172	863	863	634	634	-67	-67	2840	475
1990	-731	267	267	-296	-296	-1509	-1509	1667	2349
1991	1183	829	829	787	787	1301	1301	2476	1444
Avg	678	1628	1628	3242	3242	6285	6285	13026	11589
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	2590	2586	1786	460	460	-569	1107	298	
1977	2344	2339	2132	1070	1070	1374	1050	492	
1978	13424	13424	6023	3272	3272	2140	1475	-1692	
1979	5749	5698	4788	507	507	-135	1502	-283	
1980	5994	5897	5352	3440	3440	3231	1874	-1376	
1981	4827	4816	2527	678	678	-2217	733	64	
1982	35667	35667	13018	4063	4063	3078	1024	-1142	
1983	25275	25275	21869	31729	31729	10336	560	3669	
1984	5445	5394	4636	1158	1158	-1182	877	-983	
1985	3834	3826	2966	656	656	-2490	-1289	29	
1986	6995	6995	5812	4385	4385	2833	2079	-1243	
1987	3024	3020	1616	75	75	-1592	1093	539	
1988	2677	2672	1982	1176	1176	1260	1121	576	
1989	4063	4057	2622	593	593	-2604	-638	-804	
1990	3040	3035	2261	564	564	611	1083	516	
1991	3582	3576	1915	1150	1150	1199	1024	415	
Avg	8033	8017	5082	3436	3436	955	917	-58	

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Table 8
Average Flows in CFS
Alternative 3A
Old River near Bacon Island

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	-5133	-4193	-4193	-1732	-1732	-1340	-1340	-1395	-574
1977	-390	-547	-547	89	89	33	33	9	-65
1978	-482	-433	-433	-1858	-1858	-3380	-3380	-220	2252
1979	-4225	-3072	-3072	-2225	-2225	-3444	-3444	928	-618
1980	-2970	-3784	-3784	-4281	-4281	2724	2724	6606	3861
1981	-4515	-2552	-2552	-2812	-2812	-797	-797	-1164	-581
1982	-2266	-5107	-5107	-4077	-4077	497	497	2990	3151
1983	-964	-256	-256	4301	4301	6844	6844	9990	12206
1984	1283	2361	2361	5389	5389	4462	4462	2290	-218
1985	-4767	-5078	-5078	-4167	-4167	-1330	-1330	-1295	-205
1986	-1421	-890	-890	-3104	-3104	-4126	-4126	5153	6392
1987	-3240	-1658	-1658	-2167	-2167	-1825	-1825	299	-219
1988	-1120	-450	-450	-3159	-3159	-4416	-4416	23	-34
1989	-491	-445	-445	-260	-260	-1385	-1385	70	-4290
1990	-2025	-1291	-1291	-1312	-1312	-3422	-3422	-903	6
1991	-493	-458	-458	-98	-98	-54	-54	-70	-2625
Avg	-2076	-1741	-1741	-1342	-1342	-685	-685	1457	1152
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	540	-33	-173	-587	-587	-2898	-423	-490	
1977	549	-23	-17	-135	-135	-334	-489	-324	
1978	2025	2025	319	-197	-197	-1103	-547	-2548	
1979	811	-787	-483	-1477	-1477	-3558	-684	-1378	
1980	625	-1396	-1213	-371	-371	-602	-525	-2925	
1981	906	-148	-103	-559	-559	-5228	-1281	-841	
1982	6185	6185	1318	-1821	-1821	-781	-1917	-4220	
1983	4543	4543	3730	8147	8147	-331	-3795	-1950	
1984	755	-820	-585	-770	-770	-5192	-2221	-2096	
1985	846	45	-101	-247	-247	-5328	-3759	-764	
1986	483	483	-1537	261	261	-725	-620	-2574	
1987	551	-28	-143	-914	-914	-4347	-682	-292	
1988	591	21	-71	-102	-102	-616	-440	-343	
1989	394	-312	-135	-228	-228	-5331	-2805	-1619	
1990	551	-17	97	-580	-580	-1351	-509	-345	
1991	742	45	-88	-93	-93	-626	-587	-352	
Avg	1319	611	51	20	20	-2397	-1330	-1441	

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Table 9
Average Flows in CFS
Alternative 3A
Middle River near Bacon Island

(Hydrology from DWRSIM Study 472B)

Year	Oct (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	-4566	-3642	-3642	-1730	-1730	-1413	-1413	-1477
1977	-875	-853	-853	-197	-197	-255	-255	-322
1978	-847	-746	-746	-1813	-1813	-3192	-3192	-867
1979	-3921	-2834	-2834	-2091	-2091	-3069	-3069	18
1980	-2890	-3338	-3338	-3592	-3592	1100	1100	4034
1981	-4159	-2463	-2463	-2525	-2525	-1071	-1071	-1348
1982	-2308	-4366	-4366	-3789	-3789	-459	-459	1241
1983	-1424	-896	-896	2358	2358	4292	4292	6551
1984	316	902	902	2925	2925	2889	2889	1186
1985	-4121	-4377	-4377	-3531	-3531	-1406	-1406	-1422
1986	-1661	-1152	-1152	-2729	-2729	-3504	-3504	2352
1987	-3122	-1772	-1772	-2041	-2041	-1780	-1780	-114
1988	-1370	-726	-726	-2752	-2752	-3690	-3690	-293
1989	-841	-739	-739	-514	-514	-1415	-1415	-253
1990	-2067	-1451	-1451	-1380	-1380	-2955	-2955	-1091
1991	-830	-753	-753	-379	-379	-333	-333	-384
Avg	-2168	-1825	-1825	-1486	-1486	-1016	-1016	488
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	174	-428	-570	-860	-860	-2776	-704	-757
1977	126	-471	-456	-421	-421	-697	-802	-602
1978	803	803	-370	-693	-693	-1514	-979	-2488
1979	148	-1449	-1221	-1752	-1752	-3350	-1059	-1559
1980	-68	-2020	-1933	-904	-904	-1088	-920	-2748
1981	358	-730	-609	-919	-919	-4530	-1564	-1090
1982	3443	3443	156	-2062	-2062	-1238	-2114	-3707
1983	2546	2546	1811	5026	5026	-1055	-3559	-2110
1984	113	-1462	-1308	-1158	-1158	-4556	-2348	-2135
1985	391	-444	-612	-604	-604	-4591	-3443	-1013
1986	-203	-203	-2297	-396	-396	-1146	-1025	-2497
1987	175	-434	-564	-1217	-1217	-3877	-1018	-571
1988	226	-372	-504	-405	-405	-894	-747	-564
1989	-84	-817	-587	-594	-594	-4635	-2790	-1723
1990	176	-422	-369	-854	-854	-1581	-806	-586
1991	262	-466	-531	-385	-385	-955	-881	-626
Avg	537	-183	-623	-512	-512	-2405	-1547	-1549

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Table 10
Average Flows in CFS
Alternative 3A
Sacramento River at Rio Vista

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	12909	10626	10626	8682	8682	8936	8936	11943	10178
1977	2983	1956	1956	2130	2130	2964	2964	9276	4353
1978	4172	2411	2411	5989	5989	48716	48716	47071	52819
1979	7347	6632	6632	6332	6332	16674	16674	33054	23380
1980	5726	8299	8299	13687	13687	79786	79786	102752	41717
1981	7272	5510	5510	7743	7743	19063	19063	21194	23338
1982	4870	26111	26111	77598	77598	61494	61494	74513	61100
1983	16658	30828	30828	53928	53928	68601	68601	127113	180326
1984	16337	54797	54797	113966	113966	51078	51078	28434	27004
1985	10512	25461	25461	15186	15186	9297	9297	11275	9765
1986	3834	3287	3287	8730	8730	15639	15639	165913	113322
1987	5515	4422	4422	6140	6140	8836	8836	14842	19201
1988	3421	2882	2882	8480	8480	18659	18659	8563	5817
1989	4163	2384	2384	2551	2551	5026	5026	8742	31845
1990	5109	4342	4342	5119	5119	13519	13519	10061	7160
1991	4149	2584	2584	2610	2610	3257	3257	9323	21640
Avg	7186	12033	12033	21179	21179	26972	26972	42754	39560
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-14)	Jun (5-30)	Jul	Aug	Sep	
1976	4275	4278	4123	6530	6530	4806	1624	2762	
1977	4108	4110	4444	5775	5775	2254	1667	2514	
1978	29595	29595	12421	7463	7463	5431	2638	6061	
1979	9847	9882	5061	10607	10607	6870	2088	3531	
1980	11609	11625	7458	6982	6982	3991	2199	6146	
1981	9108	9116	3150	6157	6157	8076	2587	3051	
1982	97425	97425	28263	14990	14990	4162	3497	14607	
1983	69602	69602	45181	43600	43600	10180	7234	18263	
1984	10068	10102	5815	7134	7134	9830	4429	4528	
1985	5792	5793	6005	5109	5109	8438	5290	3122	
1986	13648	13648	5844	4741	4741	4532	2644	5771	
1987	6541	6543	3244	8196	8196	7211	2114	2435	
1988	4502	4504	4030	5633	5633	2374	1547	2399	
1989	14924	14926	7191	4544	4544	8534	4391	4575	
1990	6309	6311	3055	6445	6445	3222	1623	2455	
1991	8166	8167	3576	4627	4627	2510	1723	2597	
Avg	19095	19102	9304	9283	9283	5776	2956	5301	

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Table 11
Average Flows in CFS
Alternative 3A
Montezuma Slough near Collinsville

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	1716	1698	1698	1710	1710	1719	1719	1734	1735
1977	1706	1690	1690	1688	1688	1697	1697	1736	1702
1978	-28	-59	-59	-32	-32	773	773	845	1014
1979	1692	1690	1690	1686	1686	1747	1747	1923	1827
1980	-33	-16	-16	57	57	1538	1538	2028	868
1981	1696	1691	1691	1690	1690	1782	1782	1781	1809
1982	-46	286	286	1201	1201	1158	1158	1482	1288
1983	265	563	563	1188	1188	1548	1548	2514	3259
1984	319	1115	1115	2151	2151	1072	1072	600	464
1985	1695	1761	1761	1708	1708	1725	1725	1738	1747
1986	-49	-44	-44	-9	-9	118	118	2874	2150
1987	1691	1691	1691	1687	1687	1713	1713	1778	1789
1988	1694	1695	1695	1690	1690	1727	1727	1735	1716
1989	1703	1687	1687	1686	1686	1691	1691	1737	1799
1990	1689	1692	1692	1689	1689	1714	1714	1735	1728
1991	1703	1687	1687	1687	1687	1697	1697	1736	1767
Avg	1088	1177	1177	1342	1342	1464	1464	1749	1666
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	1718	1720	1710	-3	-3	-49	-72	-69	
1977	1715	1716	1716	-6	-6	-57	-72	-69	
1978	636	636	210	70	70	12	-48	-51	
1979	1780	1778	1745	68	68	-6	-56	-66	
1980	194	194	113	65	65	9	-47	-44	
1981	1766	1765	1712	-5	-5	-27	-61	-68	
1982	2000	2000	608	208	208	9	-40	102	
1983	1452	1452	1038	1204	1204	252	14	257	
1984	157	157	70	21	21	22	-27	-63	
1985	1740	1741	1733	-24	-24	-26	-55	-68	
1986	248	248	97	46	46	10	-36	-47	
1987	1735	1737	1704	18	18	-28	-64	-70	
1988	1720	1722	1711	-6	-6	-56	-72	-69	
1989	1777	1777	1736	-35	-35	-27	-57	-58	
1990	1735	1736	1710	-3	-3	-54	-72	-70	
1991	1748	1748	1711	-23	-23	-55	-72	-70	
Avg	1383	1383	1208	100	100	-4	-52	-33	

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Table 12
Average Flows in CFS
Alternative 3A
Combined Steamboat Slough and Sutter Slough Flow

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	4836	4044	4044	3316	3316	3327	3327	4461	3812
1977	1251	839	839	902	902	1094	1094	3465	1680
1978	1685	935	935	1972	1972	12914	12914	16232	14406
1979	2873	2564	2564	2487	2487	5551	5551	12581	9061
1980	2245	3171	3171	4623	4623	19745	19745	24474	10571
1981	2826	2172	2172	2950	2950	6970	6970	8014	9050
1982	1948	8942	8942	22877	22877	16109	16109	21918	23191
1983	6352	11495	11495	17806	17806	19312	19312	29055	28462
1984	6272	20672	20672	28839	28839	14673	14673	10914	10548
1985	3512	9558	9558	5676	5676	3348	3348	4078	3508
1986	1585	1245	1245	2960	2960	5591	5591	32459	24630
1987	2209	1783	1783	2384	2384	3223	3223	5404	7227
1988	1423	1164	1164	3028	3028	6324	6324	3178	2252
1989	1694	970	970	982	982	1861	1861	3228	12551
1990	2055	1735	1735	2037	2037	4793	4793	3310	2737
1991	1669	1088	1088	1074	1074	1225	1225	3470	7910
Avg	2777	4524	4524	6495	6495	7879	7879	11640	10725
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	1712	1712	1777	2720	2720	2253	739	1148	
1977	1594	1595	1628	2391	2391	1186	898	1074	
1978	11416	11416	4752	3038	3038	2388	1270	2429	
1979	3720	3726	2053	4206	4206	3045	1073	1511	
1980	4365	4370	2798	2755	2755	1768	1033	2468	
1981	3480	3483	1369	2590	2590	3600	1266	1308	
1982	26023	26023	11265	5903	5903	1915	1622	5588	
1983	22937	22937	17428	17872	17872	4435	3141	7133	
1984	3810	3817	2353	2946	2946	4418	1994	1882	
1985	2289	2290	2424	2211	2211	3831	2375	1346	
1986	4726	4726	2307	2062	2062	2104	1283	2325	
1987	2533	2533	1427	3343	3343	3294	1103	1097	
1988	1786	1788	1683	2393	2393	1283	870	1069	
1989	5645	5646	2884	2024	2024	3893	2015	1857	
1990	2398	2399	1293	2701	2701	1624	918	1097	
1991	3130	3131	1495	1931	1931	1342	932	1139	
Avg	6348	6350	3684	3818	3818	2649	1408	2154	

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Table 13
Average Flows in CFS
Alternative 3A
Head of Old River

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	0	0	0	1358	1358	1158	1158	1488	1190
1977	0	0	0	1110	1110	796	796	857	836
1978	0	0	0	1086	1086	2320	2320	4477	6702
1979	0	0	0	1327	1327	2658	2658	5708	5327
1980	0	0	0	1520	1520	8298	8298	14777	8775
1981	0	0	0	1607	1607	2005	2005	1911	1982
1982	0	0	0	1593	1593	5720	5720	9980	9245
1983	7535	5346	5346	11397	11397	14766	14766	21383	23899
1984	7317	8221	8221	12815	12815	9136	9136	6156	3729
1985	0	0	0	1435	1435	1121	1121	1663	1562
1986	0	0	0	1285	1285	1522	1522	13389	15655
1987	0	0	0	1217	1217	1142	1142	1276	1338
1988	0	0	0	1001	1001	1062	1062	848	887
1989	0	0	0	841	841	893	893	870	1375
1990	0	0	0	872	872	1004	1004	920	937
1991	0	0	0	746	746	674	674	675	1765
Avg	928	848	848	2576	2576	3392	3392	5399	5325
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	1193	0	0	549	549	715	542	599	
1977	1187	0	0	504	504	557	482	512	
1978	8974	8974	6525	3623	3623	1463	849	1436	
1979	3260	0	0	1077	1077	949	770	874	
1980	4063	0	0	3166	3166	1886	786	1393	
1981	2190	0	0	699	699	879	709	723	
1982	15949	15949	9049	5009	5009	1661	942	2066	
1983	12358	12358	11350	21156	21156	6779	935	3327	
1984	3214	0	0	1055	1055	1068	979	1012	
1985	1669	0	0	706	706	890	869	715	
1986	6017	6017	0	3923	3923	844	825	991	
1987	1205	0	0	625	625	845	638	625	
1988	1190	0	0	504	504	556	586	564	
1989	1471	0	0	491	491	842	728	674	
1990	1183	0	0	486	486	540	452	543	
1991	1455	0	0	536	536	505	280	511	
Avg	4161	2706	1683	2757	2757	1311	711	1035	

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Table 14

Average Flows in CFS
Alternative 3A
Cross Delta Flow

(Hydrology from DWRSIM Study 472B)

Year	Oct (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	3255	3037	3037	2717	2717	2704	3083	2842
1977	1378	1018	1018	1105	1105	1328	2732	1861
1978	1867	1195	1195	2134	2134	5700	6674	5998
1979	2574	2433	2433	2402	2402	3441	3441	5367
1980	2253	2725	2725	3261	3261	7775	7775	9269
1981	2535	2212	2212	2622	2622	3705	3705	4603
1982	2085	4379	4379	8985	8985	6609	6609	4263
1983	3479	5039	5039	7015	7015	7495	7495	10591
1984	3377	8038	8038	10676	10676	5991	5991	4728
1985	2892	4545	4545	3507	3507	2708	2708	4722
1986	1799	1473	1473	2675	2675	3484	3484	11882
1987	2229	1941	1941	2344	2344	2691	2691	3261
1988	1650	1381	1381	2682	2682	3690	3690	3728
1989	1859	1200	1200	1239	1239	2040	2040	2167
1990	2154	1910	1910	2128	2128	3277	3277	2696
1991	1819	1346	1346	1340	1340	1503	1503	2376
Avg	2325	2742	2742	3552	3552	4009	4009	4028
Year	Apr (1-15)	Apr (16-31)	May (1-14)	Jun (5-30)	Jun (5-30)	Jul	Aug	Sep
1976	1767	1764	1853	2436	2436	5892	2608	1389
1977	1691	1689	1758	2282	2282	3658	3015	1328
1978	4884	4884	3012	2460	2460	5770	3775	2386
1979	2655	2658	1835	3003	3003	6751	3164	1748
1980	2889	2892	2259	2299	2299	4327	2944	2379
1981	2596	2596	1446	2352	2352	7589	3812	1557
1982	9681	9681	4821	3387	3387	4586	4339	3445
1983	8730	8730	6858	6876	6876	7125	6619	3711
1984	2709	2712	2047	2494	2494	8190	5141	2048
1985	2064	2062	2177	2155	2155	7806	6141	1597
1986	2982	2982	1956	1834	1834	5010	3513	2306
1987	2252	2250	1588	2717	2717	7287	3464	1341
1988	1822	1820	1776	2245	2245	3851	2903	1310
1989	3324	3322	2425	2040	2040	7867	5524	2039
1990	2180	2178	1429	2414	2414	4651	3060	1331
1991	2503	2502	1628	2004	2004	4028	3082	1401
Avg	3421	3420	2429	2687	2687	5912	3944	1957

Table 15
Average Flows in CFS
Alternative 3B
QWEST

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	-2702	-3363	-3363	-629	-629	386	386	712	1617
1977	2437	1447	1447	1270	1270	1603	1603	2592	1414
1978	1217	995	995	-1406	-1406	3999	3999	10409	16077
1979	-2272	-1919	-1919	-2029	-2029	-407	-407	12782	7459
1980	-1201	-3019	-3019	-4276	-4276	23992	23992	36719	18352
1981	-1653	-1145	-1145	-2557	-2557	3501	3501	2536	5156
1982	-1015	-3348	-3348	2758	2758	16389	16389	25184	25233
1983	5645	9162	9162	26051	26051	35504	35504	51281	60507
1984	9503	20293	20293	35286	35286	21937	21937	14302	6975
1985	-4485	-2634	-2634	-3790	-3790	682	682	1600	3489
1986	61	913	913	-2985	-2985	-2685	-2685	43835	36229
1987	-1210	-77	-77	-1821	-1821	-432	-432	4700	4510
1988	427	1354	1354	-3189	-3189	-3683	-3683	2706	1923
1989	1189	860	860	551	551	-514	-514	2919	-1201
1990	-1288	-11	-11	-762	-762	-2849	-2849	1375	2416
1991	1192	815	815	754	754	1330	1330	2442	485
Avg	365	1270	1270	2702	2702	6172	6172	13506	11915
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	2944	2941	1988	207	207	-973	1338	196	
1977	2653	2650	2385	1042	1042	1677	1275	460	
1978	15170	15170	6768	3639	3639	2431	1746	-2519	
1979	6497	6476	5622	47	47	-539	1816	-579	
1980	6732	6621	6218	3927	3927	3893	2279	-2124	
1981	5432	5377	2970	527	527	-3210	815	-119	
1982	39021	39021	14751	4216	4216	3690	1109	-2332	
1983	27735	27735	24890	37298	37298	12358	272	3522	
1984	6102	6076	5416	1071	1071	-2014	854	-1527	
1985	4414	4467	3333	557	557	-3573	-1925	-160	
1986	7907	7907	6892	5251	5251	3363	2503	-1943	
1987	3347	3345	1822	-369	-369	-2410	1289	535	
1988	3035	3031	2219	1168	1168	1513	1366	582	
1989	4158	4154	2829	509	509	-3746	-1065	-1341	
1990	3389	3385	2609	344	344	632	1314	502	
1991	3942	3939	2154	1159	1159	1431	1229	368	
Avg	8905	8893	5804	3787	3787	908	1013	-405	

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Table 16

Average Flows In CFS
Alternative 3B
Three Mile Slough

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov	Dec	Jan	Feb	Mar
	(1-10)	(11-30)	(1-16)	(17-31)	(1-20)	(21-31)
1976	-1404	-1439	-1439	-837	-837	-648
1977	39	-98	-98	-145	-145	-111
1978	-253	-205	-205	-831	-831	-1533
1979	-1074	-969	-969	-983	-983	-1107
1980	-789	-1264	-1264	-1734	-1734	789
1981	-950	-768	-768	-1151	-1151	-474
1982	-712	-2018	-3224	-3224	242	242
1983	25	139	139	2367	3535	3535
1984	752	1225	1225	1079	1714	1714
1985	-1630	-1853	-1853	-1703	-1703	-603
1986	-460	-264	-264	-1270	-1270	-1504
1987	-781	-511	-511	-931	-931	-794
1988	-366	-159	-159	-1297	-1297	-1799
1989	-255	-228	-228	-296	-296	-615
1990	-775	-494	-494	-680	-680	-1457
1991	-254	-249	-249	-263	-263	-176
Avg	-555	-572	-572	-744	-744	222
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jul (5-30)	Sep
1976	71	73	-114	-574	-574	-71
1977	25	27	-37	-361	-361	-50
1978	1327	1327	389	30	-82	-57
1979	459	455	531	-806	-806	-711
1980	419	395	525	114	114	273
1981	288	280	125	-497	-497	-1273
1982	2760	2760	1293	-193	-193	220
1983	1988	1988	2479	4822	4822	1563
1984	369	364	449	-446	-446	-1131
1985	267	279	49	-438	-438	-1361
1986	561	561	731	473	473	142
1987	32	34	-99	-766	-766	-1079
1988	78	80	-59	-339	-339	-94
1989	-211	-208	-110	-416	-416	-1393
1990	53	55	67	-541	-541	-304
1991	57	60	-46	-271	-271	-110
Avg	534	533	386	-13	-13	-380

Table 17
Average Flows in CFS
Alternative 3B
San Joaquin River at Antioch

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	-1473	-2106	-2106	-10	-10	845	845	1241	1855
1977	2124	1303	1303	1175	1175	1510	1510	2588	1400
1978	1189	969	969	-753	-753	5542	5542	10488	15243
1979	-1424	-1137	-1137	-1248	-1248	618	618	11807	7044
1980	-627	-1932	-1932	-2667	-2667	22857	22857	34269	16507
1981	-935	-595	-595	-1590	-1590	3785	3785	3056	5242
1982	-529	-1483	-1483	5813	5813	16033	16033	23463	22960
1983	5328	8761	8761	23258	23258	31608	31608	47317	59584
1984	8389	18655	18655	33704	33704	19795	19795	12769	6820
1985	-3034	-920	-920	-2228	-2228	1107	1107	1925	3384
1986	263	955	955	-1872	-1872	-1286	-1286	44853	34429
1987	-663	210	210	-1086	-1086	188	188	4571	4564
1988	538	1282	1282	-2054	-2054	-1982	-1982	2650	1874
1989	1171	863	863	631	631	-72	-72	2838	458
1990	-737	266	266	-299	-299	-1525	-1525	1666	2348
1991	1183	829	829	787	787	1302	1302	2474	1442
Avg	673	1620	1620	3223	3223	6270	6270	12998	11572
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	2591	2586	1786	461	461	-597	1108	294	
1977	2344	2340	2133	1072	1072	1376	1052	495	
1978	13416	13416	6022	3233	3233	2131	1470	-1712	
1979	5719	5707	4761	516	516	-167	1498	-293	
1980	5992	5907	5358	3439	3439	3224	1870	-1397	
1981	4832	4787	2529	680	680	-2240	724	57	
1982	35624	35624	13013	4030	4030	3071	1003	-1155	
1983	25255	25255	21854	31729	31729	10308	526	3649	
1984	5419	5404	4637	1165	1165	-1203	850	-998	
1985	3834	3890	2966	655	655	-2512	-1325	23	
1986	6992	6992	5815	4383	4383	2829	2074	-1262	
1987	3024	3019	1616	82	82	-1623	1088	543	
1988	2678	2673	1982	1179	1179	1262	1123	580	
1989	4060	4054	2621	594	594	-2626	-669	-816	
1990	3040	3035	2262	564	564	604	1084	520	
1991	3582	3575	1916	1152	1152	1201	1026	418	
Avg	8025	8017	5079	3433	3433	940	906	-66	

Department of Water Resources, Delta Modeling Section

Table 18

Average Flows in CFS
Alternative 3B
Old River at Beacon Island

(Hydrology from DWRSIM Study 4728)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	-2255	-1482	-1482	18	18	48	48	167	19
1977	-370	-423	-423	87	87	35	35	14	-60
1978	-465	-418	-418	-100	-100	-796	-796	1974	3246
1979	-1484	-573	-573	-47	-47	-815	-815	2583	1753
1980	-548	-1133	-1133	-1627	-1627	4150	4150	7720	4214
1981	-1723	-552	-552	-353	-353	584	584	437	571
1982	-537	-2267	-2267	-1480	-1480	2783	2783	4888	4687
1983	1538	2076	2076	5688	5688	7937	7937	11175	12736
1984	3158	3879	3879	6593	6593	4532	4532	2877	1399
1985	-1968	-2240	-2240	-1538	-1538	59	59	303	366
1986	-498	-427	-427	-620	-620	-1487	-1487	7268	8022
1987	-668	-507	-507	-93	-93	-6	-6	343	282
1988	-497	-435	-435	-682	-682	-1763	-1763	27	-30
1989	-475	-430	-430	-55	-55	-77	-77	73	-1655
1990	-558	-485	-485	-165	-165	-907	-907	-94	11
1991	-478	-442	-442	-94	-94	-50	-50	-64	-179
Avg	-489	-366	-366	346	346	889	889	2481	2211
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	520	-31	-166	-162	-162	-758	-407	-265	
1977	530	-18	-12	-133	-133	-324	-470	-309	
1978	4193	4193	2588	1344	1344	-156	-276	-122	
1979	1605	138	14	2	2	-1077	-341	-271	
1980	1971	143	35	1137	1137	120	-310	-456	
1981	1088	84	-93	-96	-96	-2513	-439	-293	
1982	8201	8201	3580	726	726	-26	-367	-1477	
1983	6496	6496	5749	1091	1091	2138	-1257	537	
1984	1538	91	-7	63	63	-2465	-375	-260	
1985	819	56	-91	-49	-49	-2599	-1238	-290	
1986	2710	2710	82	1559	1559	-418	-298	-281	
1987	531	-25	-136	-168	-168	-1765	-409	-278	
1988	570	20	-65	-99	-99	-597	-423	-329	
1989	660	2	-127	-137	-137	-2602	-549	-311	
1990	532	-14	100	-191	-191	-671	-490	-331	
Avg	720	51	-82	-91	-91	-604	-562	-336	
D — 0 0 9 0 2 8	1381	711	862	862	895	-513	-317		

Table 19
Average Flows in CFS
Alternative 3B
Middle River at Bacon Island

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	-2574	-1505	-1505	-25	-25	-41	-41	72	-235
1977	-897	-767	-767	-182	-182	-246	-246	-315	-362
1978	-866	-763	-763	-118	-118	-1127	-1127	1488	2359
1979	-1796	-588	-588	-8	-8	-1006	-1006	1911	1258
1980	-685	-1139	-1139	-1627	-1627	2879	2879	5790	3053
1981	-2075	-652	-652	-312	-312	344	344	266	242
1982	-710	-2358	-2358	-1766	-1766	2056	2056	3563	3407
1983	862	1567	1567	4237	4237	6054	6054	8606	9763
1984	2584	2774	2774	4647	4647	3167	3167	1999	986
1985	-2078	-2365	-2365	-1540	-1540	-35	-35	169	58
1986	-794	-721	-721	-552	-552	-1525	-1525	5017	6125
1987	-826	-710	-710	-55	-55	-16	-16	-53	-58
1988	-776	-742	-742	-567	-567	-1738	-1738	-285	-319
1989	-859	-756	-756	-297	-297	-131	-131	-244	-1743
1990	-697	-696	-696	-250	-250	-827	-827	-275	-329
1991	-848	-770	-770	-373	-373	-327	-327	-380	-262
Avg	-815	-637	-637	76	76	468	468	1708	1496
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	201	-430	-577	-370	-370	-750	-715	-534	
1977	151	-476	-460	-425	-425	-705	-814	-613	
1978	3454	3454	2183	1017	1017	-544	-714	-154	
1979	1201	-475	-691	-176	-176	-1189	-715	-416	
1980	1629	-474	-686	763	763	-321	-720	-467	
1981	668	-468	-619	-391	-391	-2665	-718	-512	
1982	6294	6294	2704	129	129	-444	-596	-1682	
1983	5220	5220	4452	7942	7942	1240	-1464	185	
1984	1147	-505	-697	-213	-213	-2683	-559	-301	
1985	425	-446	-623	-371	-371	-2741	-1333	-513	
1986	2393	2393	-707	1075	1075	-848	-704	-250	
1987	202	-436	-570	-387	-387	-1856	-755	-581	
1988	253	-377	-510	-409	-409	-907	-758	-573	
1989	291	-466	-595	-491	-491	-2794	-665	-391	
1990	203	-424	-371	-411	-411	-908	-819	-596	
1991	291	-472	-537	-388	-388	-971	-898	-637	
Avg	1501	745	106	431	431	-1193	-809	-502	

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Table 20
Average Flows in CFS
Alternative 3B
Sacramento River at Rio Vista

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	12906	10630	10630	8689	8689	8942	8942	11949	10182
1977	2980	1956	1956	2128	2128	2961	2961	9276	4351
1978	4170	2408	2408	5998	5998	48719	48719	47076	52822
1979	7349	6639	6639	6339	6339	16676	16676	33058	23385
1980	5731	8304	8304	13691	13691	79790	79790	102753	41720
1981	7255	5518	5518	7751	7751	19066	19066	21197	23341
1982	4879	26110	26110	77600	77600	61499	61499	74515	61098
1983	16666	30831	30831	53916	53916	68603	68603	127113	180326
1984	16346	54801	54801	113966	113966	51080	51080	28438	27008
1985	10517	25460	25460	15189	15189	9303	9303	11281	9837
1986	3842	3292	3292	8737	8737	15643	15643	165912	113322
1987	5521	4431	4431	6148	6148	8842	8842	14842	19203
1988	3427	2878	2878	8486	8486	18661	18661	8563	5816
1989	4161	2381	2381	2553	2553	5034	5034	8742	31844
1990	5117	4348	4348	5126	5126	13523	13523	10066	7159
1991	4147	2581	2581	2607	2607	3253	3253	9323	21742
Avg	7188	12036	12036	21183	21183	26975	26975	42757	39572
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	4273	4275	4121	6536	6536	4831	1624	2765	
1977	4106	4108	4442	5774	5774	2254	1667	2512	
1978	29596	29596	12428	7459	7459	5447	2643	6072	
1979	9865	9890	5083	10615	10615	6892	2094	3545	
1980	11619	11632	7469	7010	7010	4006	2202	6157	
1981	9115	9131	3146	6164	6164	8087	2601	3059	
1982	97422	97422	28263	15004	15004	4177	3521	14610	
1983	69600	69600	45182	43599	43599	10205	7257	18269	
1984	10086	10110	5826	7143	7143	9838	4457	4542	
1985	5790	5852	6003	5113	5113	8447	5317	3128	
1986	13657	13657	5863	4770	4770	4538	2650	5783	
1987	6540	6541	3241	8203	8203	7228	2119	2433	
1988	4500	4502	4027	5632	5632	2374	1546	2396	
1989	14926	14928	7190	4546	4546	8543	4419	4586	
1990	6307	6309	3052	6451	6451	3234	1623	2453	
1991	8165	8166	3573	4626	4626	2509	1722	2594	
Avg	19098	19107	9307	9290	9290	5788	2966	5307	

Department of Water Resources, Delta Modeling Section

Table 21
Average Flows in CFS
Alternative 3B
Montezuma Slough near Collinsville

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	1720	1702	1702	1713	1713	1722	1722	1737	1738
1977	1708	1692	1692	1690	1690	1698	1698	1737	1703
1978	-27	-58	-58	-34	-34	767	767	841	1011
1979	1697	1695	1695	1691	1691	1752	1752	1926	1834
1980	-36	-19	-19	54	54	1534	1534	2027	868
1981	1703	1694	1694	1695	1695	1785	1785	1783	1812
1982	-48	282	282	1193	1193	1153	1153	1477	1284
1983	261	559	559	1184	1184	1545	1545	2513	3258
1984	316	1112	1112	2148	2148	1073	1073	600	461
1985	1698	1763	1763	1714	1714	1727	1727	1743	1751
1986	-50	-44	-44	-12	-12	115	115	2873	2148
1987	1695	1694	1694	1690	1690	1717	1717	1779	1791
1988	1694	1696	1696	1694	1694	1730	1730	1736	1716
1989	1704	1689	1689	1688	1688	1694	1694	1738	1801
1990	1691	1694	1694	1692	1692	1718	1718	1737	1728
1991	1705	1690	1690	1688	1688	1698	1698	1736	1771
Avg	1089	1178	1178	1343	1343	1464	1464	1749	1667
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	1719	1720	1712	-5	-5	-52	-71	-69	
1977	1716	1716	1716	-6	-6	-57	-72	-69	
1978	628	628	203	63	63	11	-47	-55	
1979	1780	1777	1746	63	63	-10	-56	-68	
1980	190	189	109	60	60	9	-47	-47	
1981	1767	1765	1712	-7	-7	-31	-63	-68	
1982	1990	1990	600	204	204	9	-42	98	
1983	1443	1443	1030	1196	1196	248	10	253	
1984	153	154	68	18	18	18	-30	-66	
1985	1742	1742	1735	-25	-25	-31	-59	-68	
1986	242	242	92	42	42	10	-35	-51	
1987	1735	1738	1704	15	15	-33	-63	-69	
1988	1722	1722	1711	-6	-6	-56	-72	-69	
1989	1778	1780	1736	-35	-35	-31	-60	-61	
1990	1735	1736	1712	-4	-4	-54	-72	-69	
1991	1748	1748	1711	-22	-22	-55	-71	-69	
Avg	1381	1381	1206	97	97	-7	-53	-34	

Department of Water Resources, Delta Modeling Section

Table 22
Average Flows in CFS
Alternative 3B
Combined Steamboat Slough and Sutter Slough Flow

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	4834	4043	4043	3317	3317	3327	3327	4461	3812
1977	1250	839	839	902	902	1093	1093	3465	1680
1978	1685	934	934	1973	1973	12915	12915	16233	14407
1979	2870	2564	2564	2488	2488	5552	5552	12583	9065
1980	2244	3170	3170	4623	4623	19747	19747	24475	10572
1981	2823	2173	2173	2949	2949	6972	6972	8017	9052
1982	1950	8943	8943	22878	22878	16111	16111	21920	23190
1983	6357	11497	11497	17804	17804	19313	19313	29055	28462
1984	6276	20672	20672	28839	28839	14673	14673	10916	10550
1985	3510	9558	9558	5677	5677	3348	3348	4078	3527
1986	1587	1246	1246	2959	2959	5592	5592	32459	24630
1987	2209	1784	1784	2384	2384	3224	3224	5404	7228
1988	1425	1163	1163	3028	3028	6326	6326	3178	2252
1989	1694	969	969	982	982	1862	1862	3228	12551
1990	2056	1736	1736	2039	2039	4794	4794	3310	2737
1991	1668	1087	1087	1073	1073	1225	1225	3470	7941
Avg	2777	4524	4524	6495	6495	7880	7880	11641	10729
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	1711	1712	1777	2721	2721	2259	739	1148	
1977	1594	1595	1628	2391	2391	1186	898	1074	
1978	11417	11417	4754	3035	3035	2391	1272	2430	
1979	3721	3726	2057	4207	4207	3050	1075	1513	
1980	4367	4370	2800	2758	2758	1771	1034	2469	
1981	3482	3484	1368	2592	2592	3602	1268	1310	
1982	26022	26022	11265	5909	5909	1918	1627	5590	
1983	22936	22936	17428	17872	17872	4444	3146	7136	
1984	3812	3817	2354	2948	2948	4421	1999	1884	
1985	2289	2306	2423	2212	2212	3833	2380	1347	
1986	4728	4728	2310	2068	2068	2106	1285	2327	
1987	2533	2533	1427	3343	3343	3297	1105	1097	
1988	1786	1786	1683	2393	2393	1283	870	1068	
1989	5646	5647	2884	2024	2024	3895	2019	1859	
1990	2398	2399	1292	2702	2702	1626	918	1096	
1991	3129	3131	1494	1931	1931	1342	932	1138	
Avg	6348	6351	3684	3819	3819	2652	1410	2155	

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Table 23
Average Flows in CFS
Alternative 3B
Head of Old River

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Jan (1-20)	Jan (21-31)	Feb	Mar
1976	0	0	0	1244	1244	1065	1065	1387	1157
1977	0	0	0	1123	1123	808	808	870	849
1978	0	0	0	966	966	2116	2116	4420	6683
1979	0	0	0	1183	1183	2494	2494	5675	5276
1980	0	0	0	1285	1285	8277	8277	14762	8765
1981	0	0	0	1428	1428	1924	1924	1813	1915
1982	0	0	0	1357	1357	5675	5675	9959	9227
1983	7498	5297	5297	11385	11385	14751	14751	21363	23879
1984	7296	8199	8199	12800	12800	9129	9129	6142	3677
1985	0	0	0	1203	1203	1028	1028	1561	1535
1986	0	0	0	1092	1092	1287	1287	13368	15638
1987	0	0	0	1077	1077	1017	1017	1284	1309
1988	0	0	0	807	807	810	810	861	900
1989	0	0	0	838	838	807	807	882	1136
1990	0	0	0	799	799	792	792	872	951
1991	0	0	0	757	757	684	684	685	1591
Avg	925	844	844	2459	2459	3292	3292	5369	5281
Year	Apr (1-15)	Apr (16-31)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep	
1976	1198	0	0	496	496	551	547	577	
1977	1192	0	0	502	502	558	487	516	
1978	8948	8948	6496	3588	3588	1422	825	1374	
1979	3223	0	0	971	971	760	740	799	
1980	4028	0	0	3130	3130	1873	768	1316	
1981	2171	0	0	639	639	625	634	669	
1982	15925	15925	9022	4957	4957	1642	833	2001	
1983	12337	12337	11329	21128	21128	6734	742	3290	
1984	3177	0	0	973	973	837	862	928	
1985	1673	0	0	676	676	635	672	668	
1986	5987	5987	0	3888	3888	819	796	889	
1987	1210	0	0	546	546	617	616	628	
1988	1195	0	0	501	501	562	590	567	
1989	1442	0	0	483	483	581	559	569	
1990	1188	0	0	440	440	489	458	546	
1991	1459	0	0	533	533	512	288	515	
Avg	4147	2700	1678	2716	2716	1201	651	991	

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Table 24

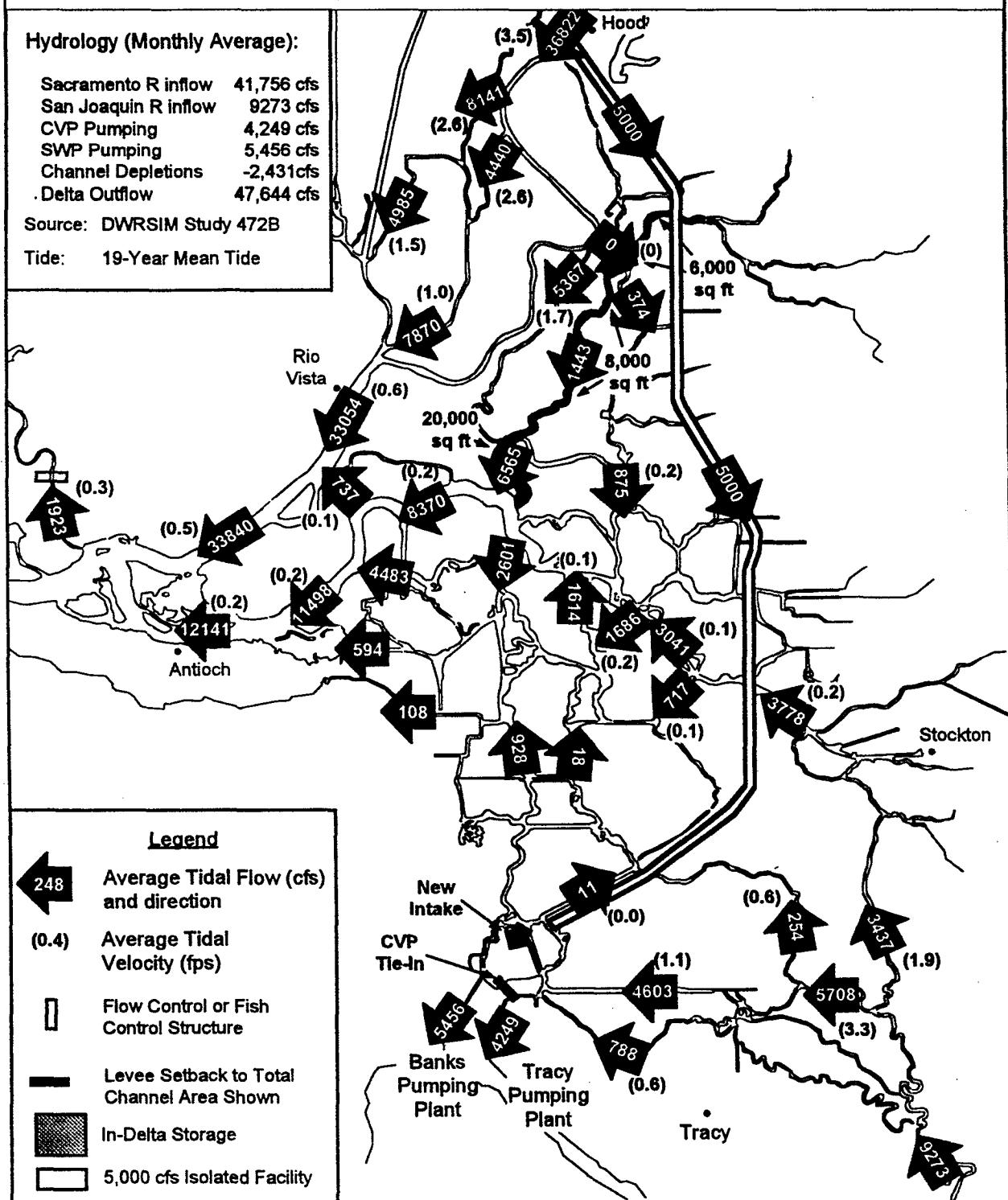
Average Flows in CFS
Alternative 3B
Cross Delta Flow

(Hydrology from DWRSIM Study 472B)

Year	Oct	Nov (1-10)	Nov (11-30)	Dec (1-16)	Dec (17-31)	Dec (1-20)	Jan (21-31)	Jan	Feb	Mar
1976	3251	3033	3033	2710	2710	2698	2698	3077	2839	
1977	1381	1018	1018	1108	1108	1331	1331	2732	1863	
1978	1868	1198	1198	2125	2125	5700	5700	6672	5996	
1979	2567	2426	2426	2394	2394	3435	3435	5364	4211	
1980	2243	2719	2719	3257	3257	7772	7772	9266	4600	
1981	2525	2204	2204	2614	2614	3701	3701	3992	4260	
1982	2075	4379	4379	8985	8985	6607	6607	8441	8859	
1983	3469	5035	5035	7012	7012	7491	7491	10640	10588	
1984	3367	8035	8035	10673	10673	5990	5990	4726	4719	
1985	2887	4546	4546	3504	3504	2702	2702	2932	2693	
1986	1791	1469	1469	2669	2669	3480	3480	11879	9305	
1987	2219	1933	1933	2336	2336	2685	2685	3261	3726	
1988	1644	1384	1384	2676	2676	3687	3687	2591	2168	
1989	1861	1204	1204	1237	1237	2032	2032	2623	5527	
1990	2146	1904	1904	2121	2121	3272	3272	2691	2377	
1991	1821	1349	1349	1343	1343	1506	1506	2747	4037	
Avg	2320	2740	3548	3548	4006	4006	5227	4861		
Year	Apr (1-15)	Apr (16-31)	May (1-4)	Jun (5-30)	Jun	Jul	Aug	Sep		
1976	1769	1767	1855	2429	2429	5866	2608	1387		
1977	1694	1691	1761	2283	2283	3658	3015	1330		
1978	4882	3002	2446	2446	5754	3769	2375			
1979	2648	1826	2995	2995	6728	3158	1735			
1980	2879	2885	2247	2285	2285	4312	2941	2367		
1981	2593	2594	1449	2345	2345	7578	3797	1549		
1982	9679	9679	4820	3372	3372	4571	4314	3438		
1983	8729	8729	6856	6874	6874	7098	6596	3704		
1984	2703	2705	2037	2485	2485	8181	5113	2034		
1985	2065	2071	2179	2150	2150	7896	6114	1590		
1986	2972	2972	1935	1804	1804	5003	3507	2294		
1987	2253	2251	1591	2710	2710	7279	3459	1343		
1988	1824	1822	1779	2246	2246	3851	2904	1312		
1989	3321	3320	2426	2038	2038	7959	5496	2027		
1990	2181	2179	1432	2408	2408	4638	3060	1333		
1991	2504	2503	1631	2005	2005	4029	3083	1403		
Avg	3419	3419	2427	2680	2680	5900	3933	1951		

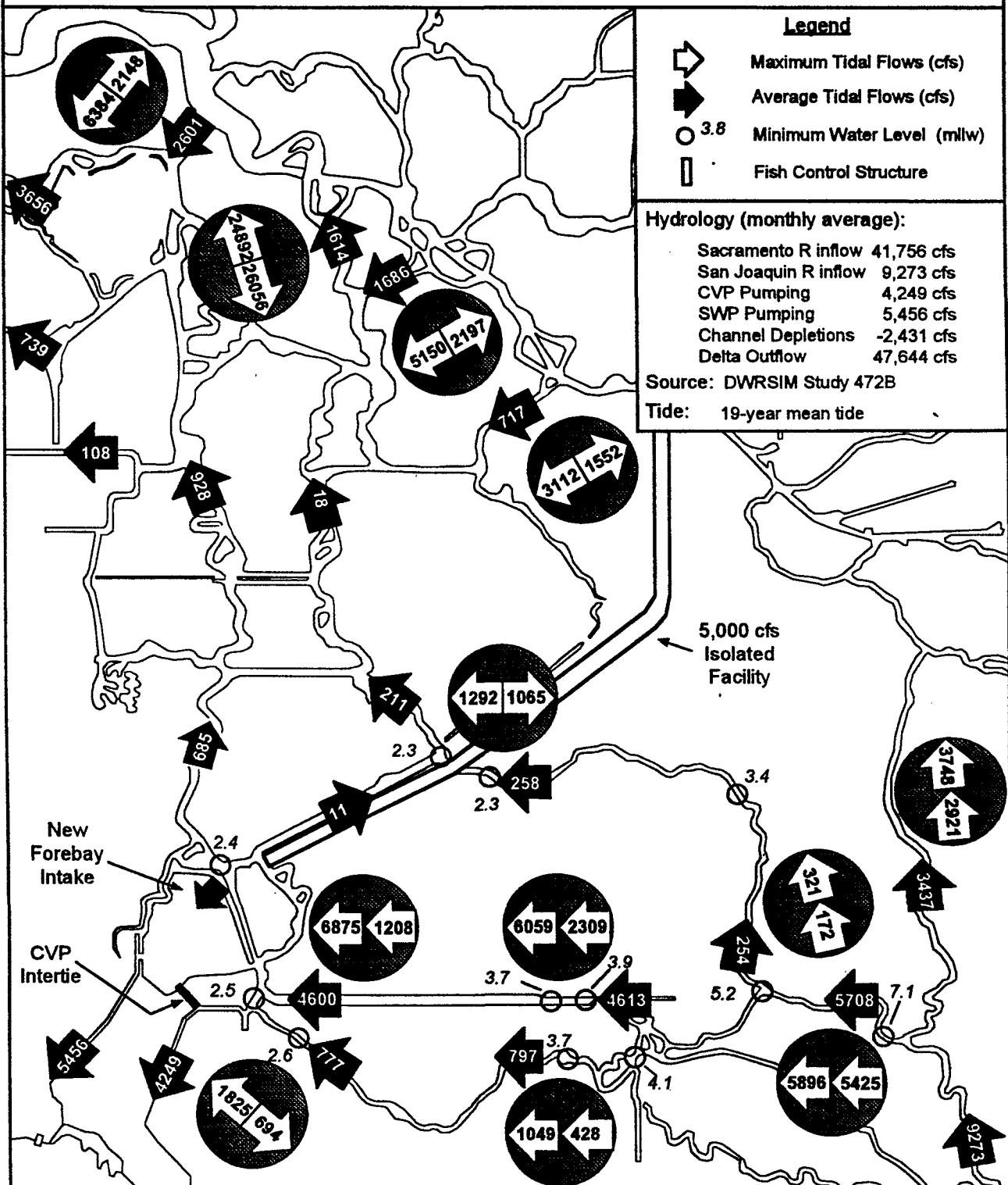
Delta Circulation

Figure 5
Average Flows and Velocities
High Delta Inflow, high Delta Exports (February 1979)
Alternative 3A



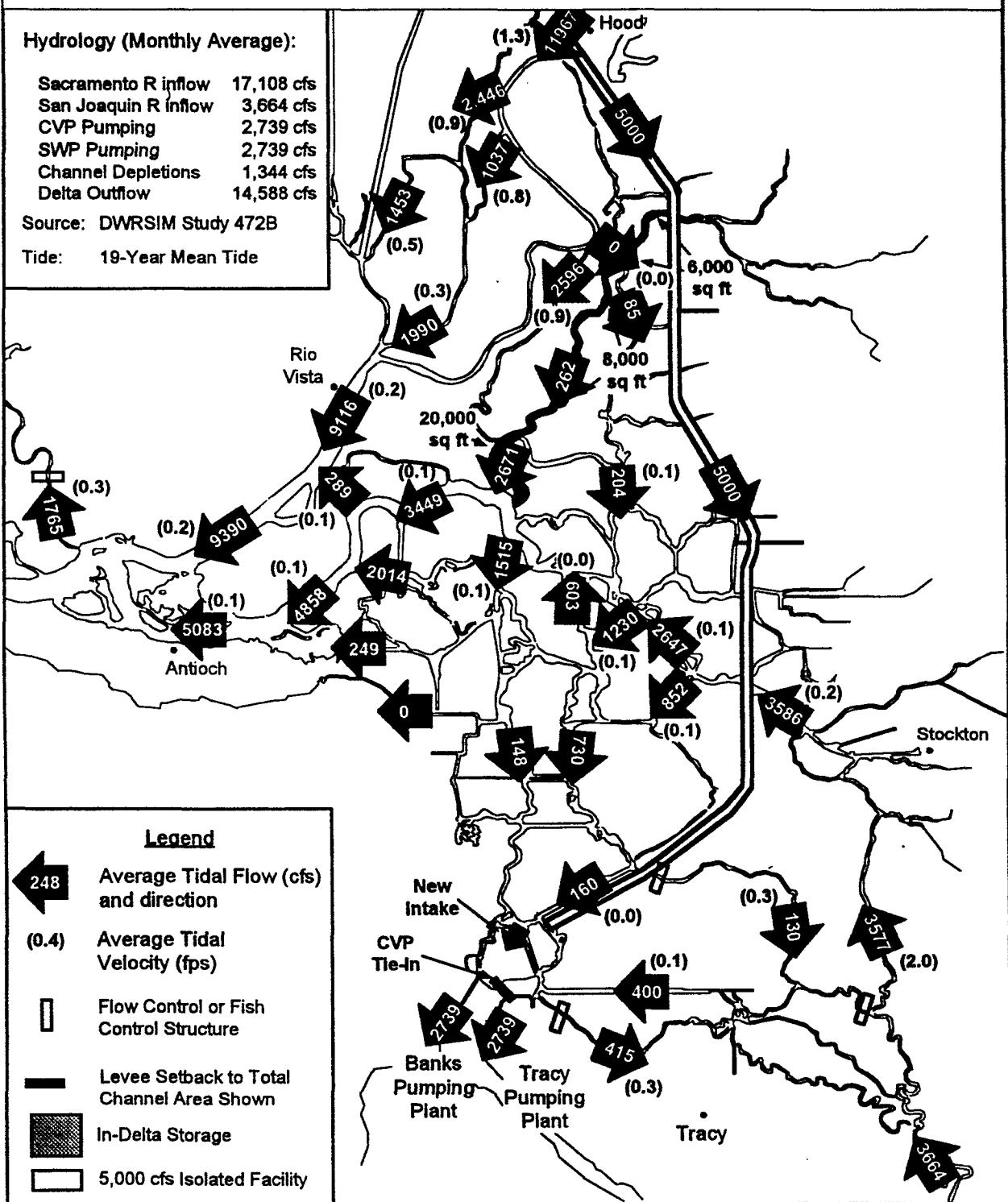
Department of Water Resources, Delta Modeling Section

Figure 6
Flows and Water Levels in South Delta
High Delta Inflows and High Delta Exports (February 1979)
Alternative 3A



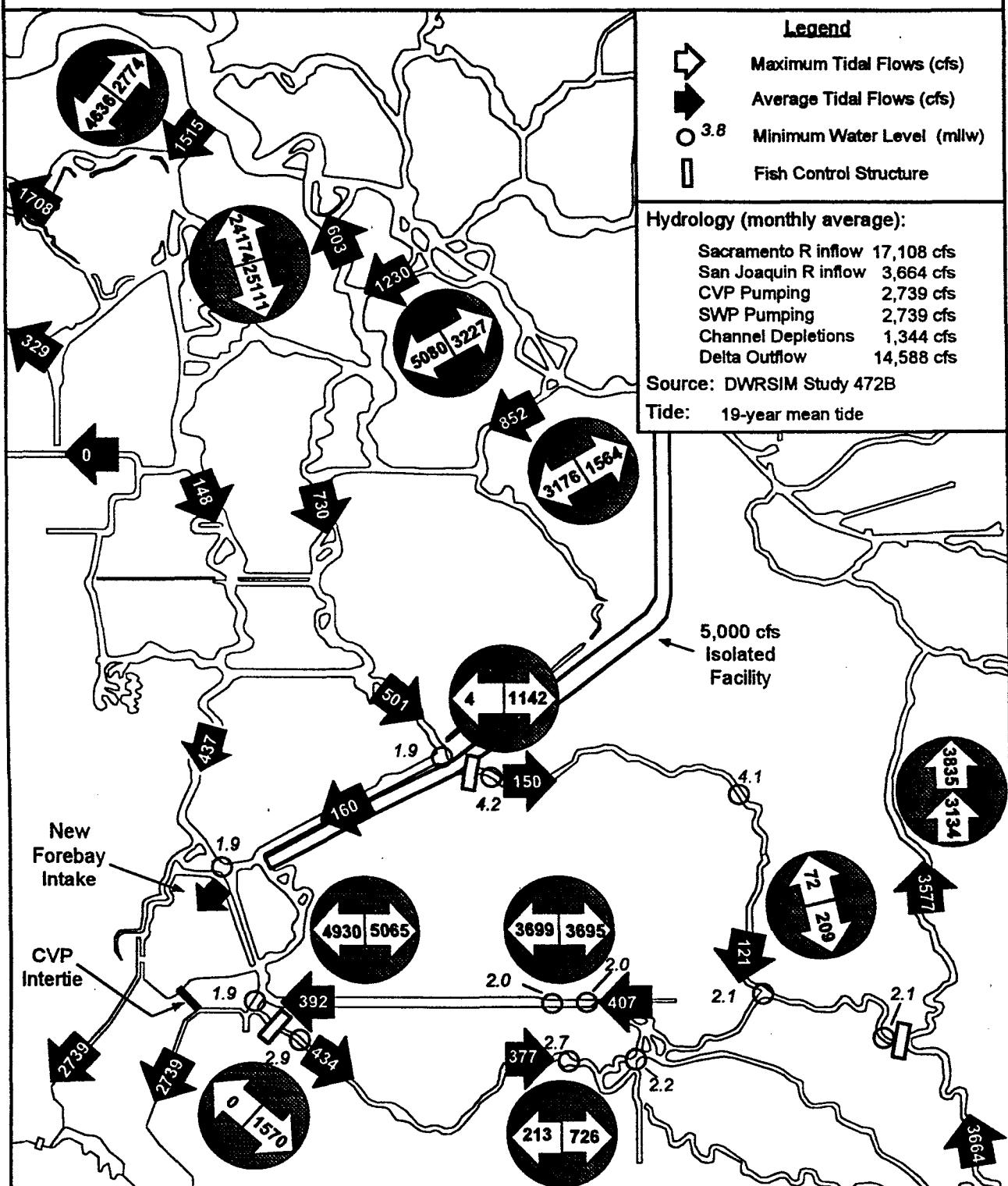
Department of Water Resources, Delta Modeling Section

Figure 7
Average Flows and Velocities
Medium Delta Inflow, Low Delta Exports (April 1981)
Alternative 3A



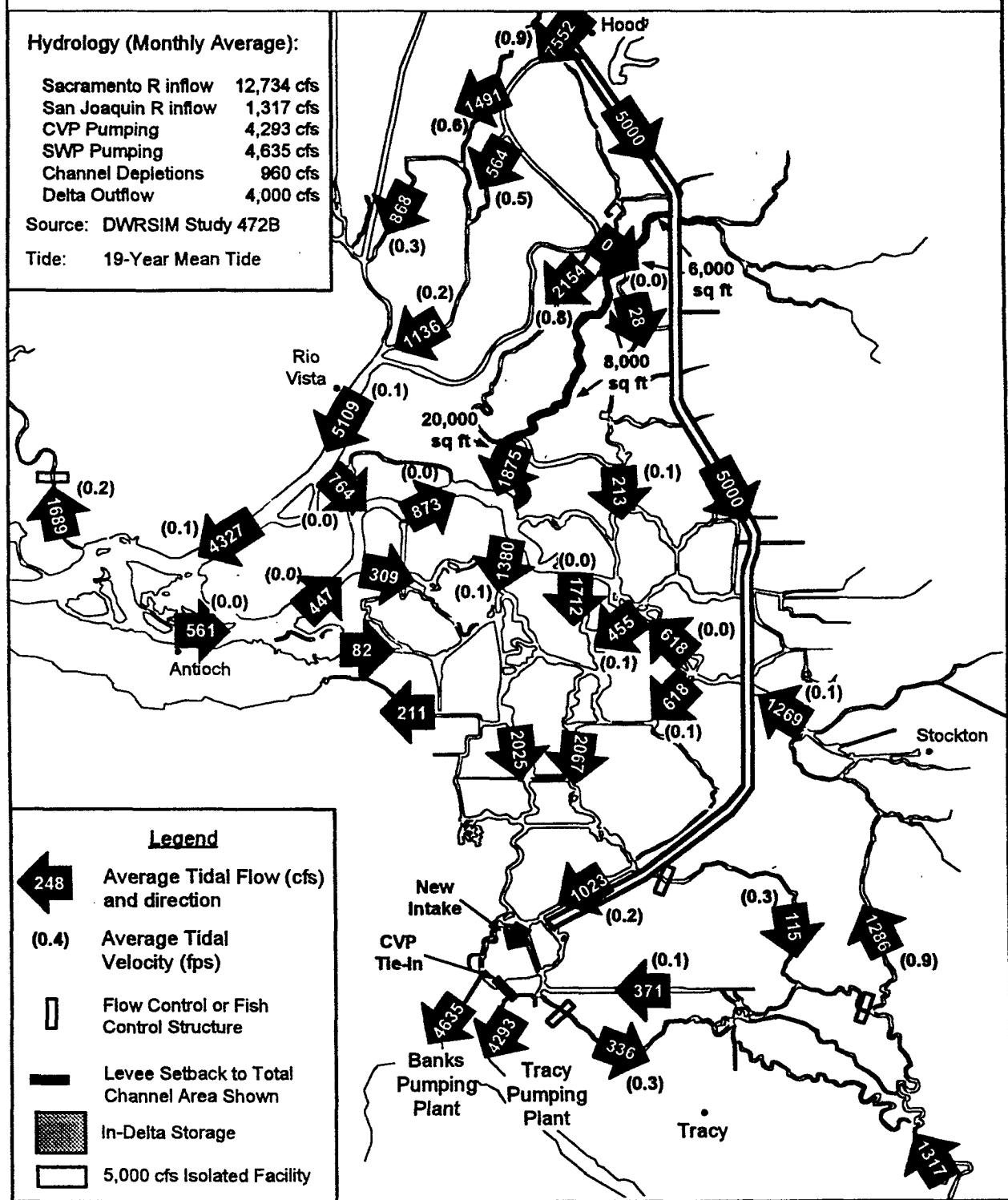
Department of Water Resources, Delta Modeling Section

Figure 8
Flows and Water Levels in South Delta
Medium Delta Inflows and Low Delta Exports (April 1981)
Alternative 3A



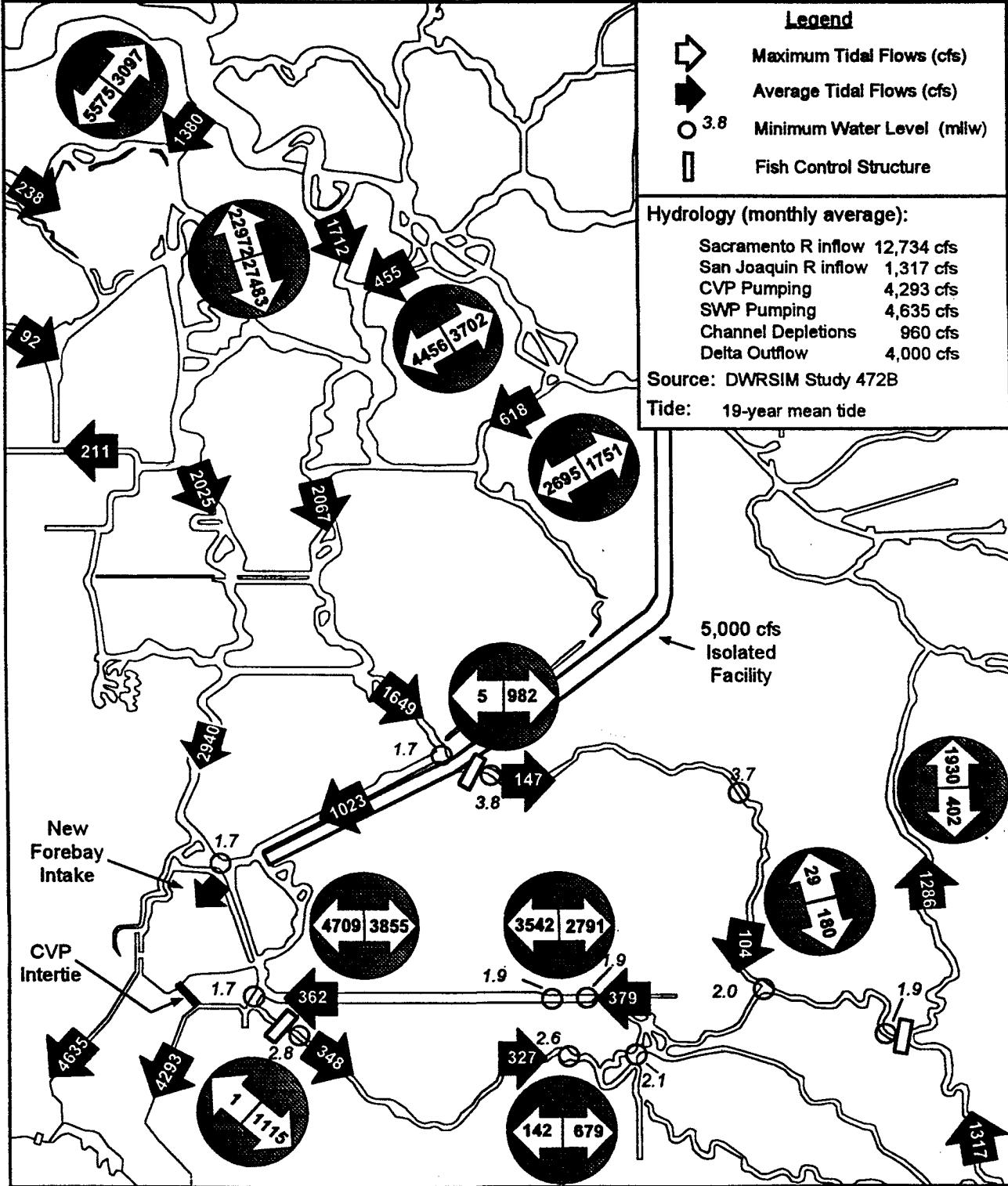
Department of Water Resources, Delta Modeling Section

Figure 9
Average Flows and Velocities
Low Delta Inflow, High Delta Exports (October WY 1990)
Alternative 3A



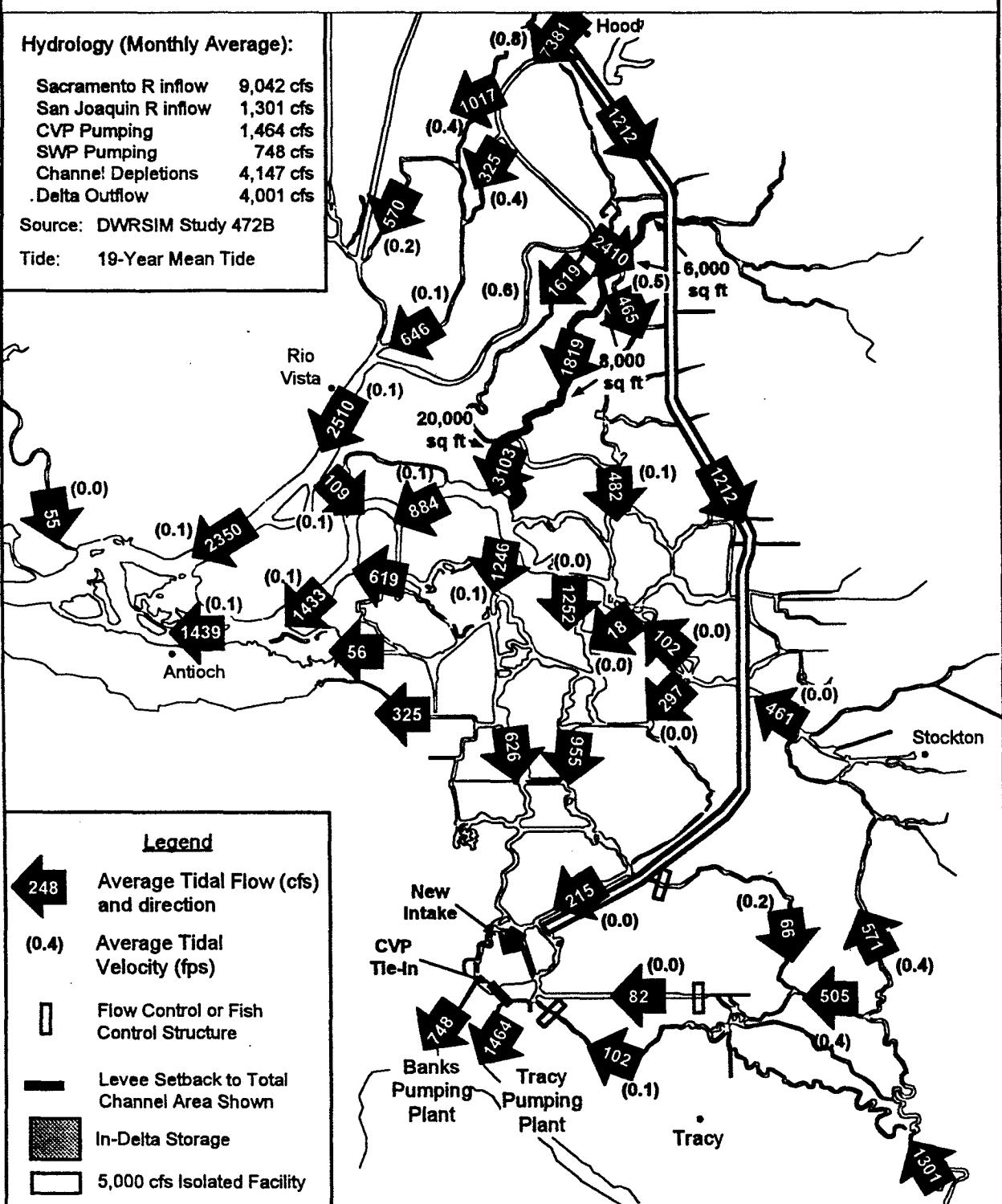
Department of Water Resources, Delta Modeling Section

Figure 10
Flows and Water Levels in South Delta
Low Delta Inflows and High Delta Exports (October WY1990)
Alternative 3A



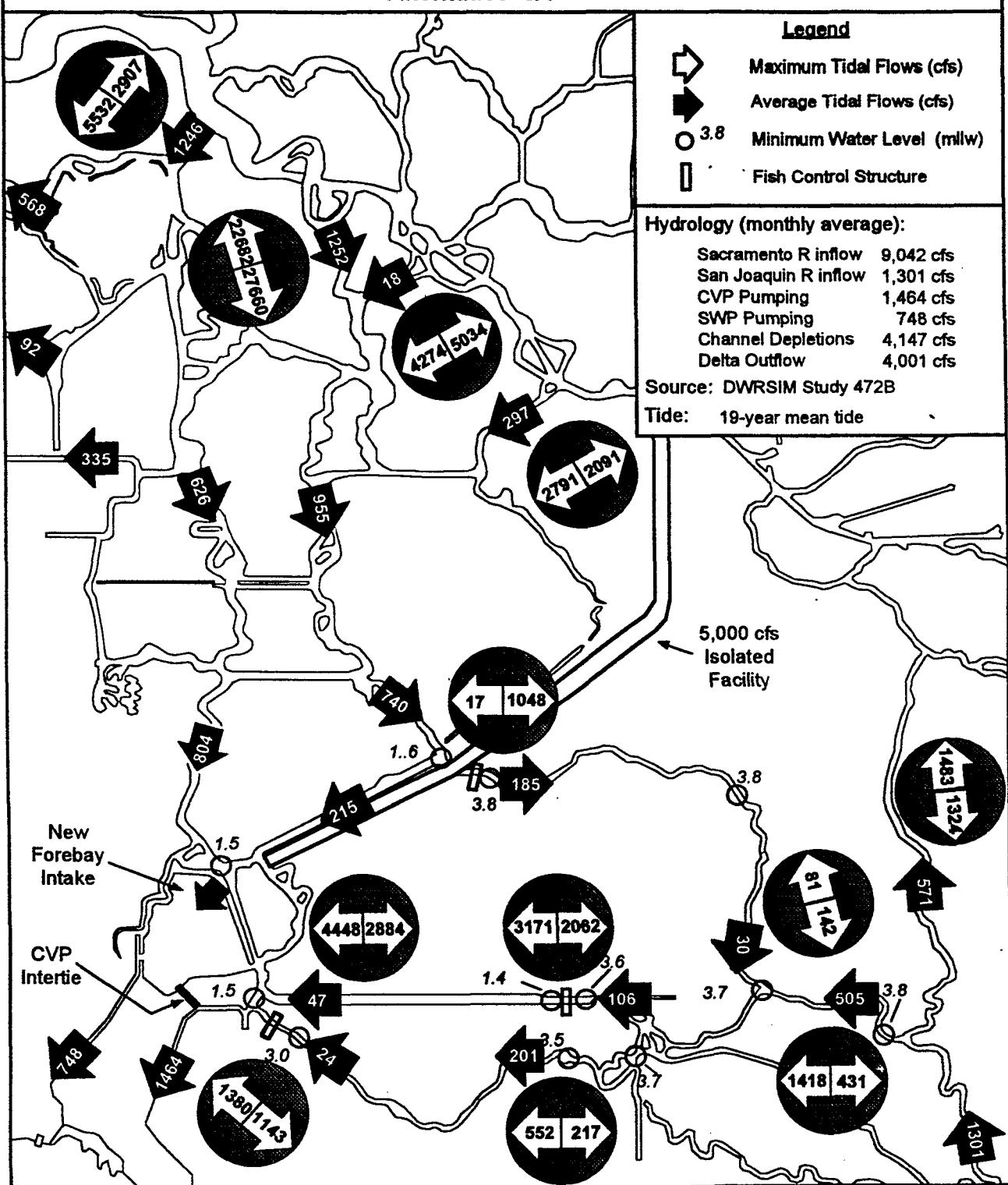
Department of Water Resources, Delta Modeling Section

Figure 11
Average Flows and Velocities
Low Delta Inflow, Low Delta Exports (July 1991)
Alternative 3A



Department of Water Resources, Delta Modeling Section

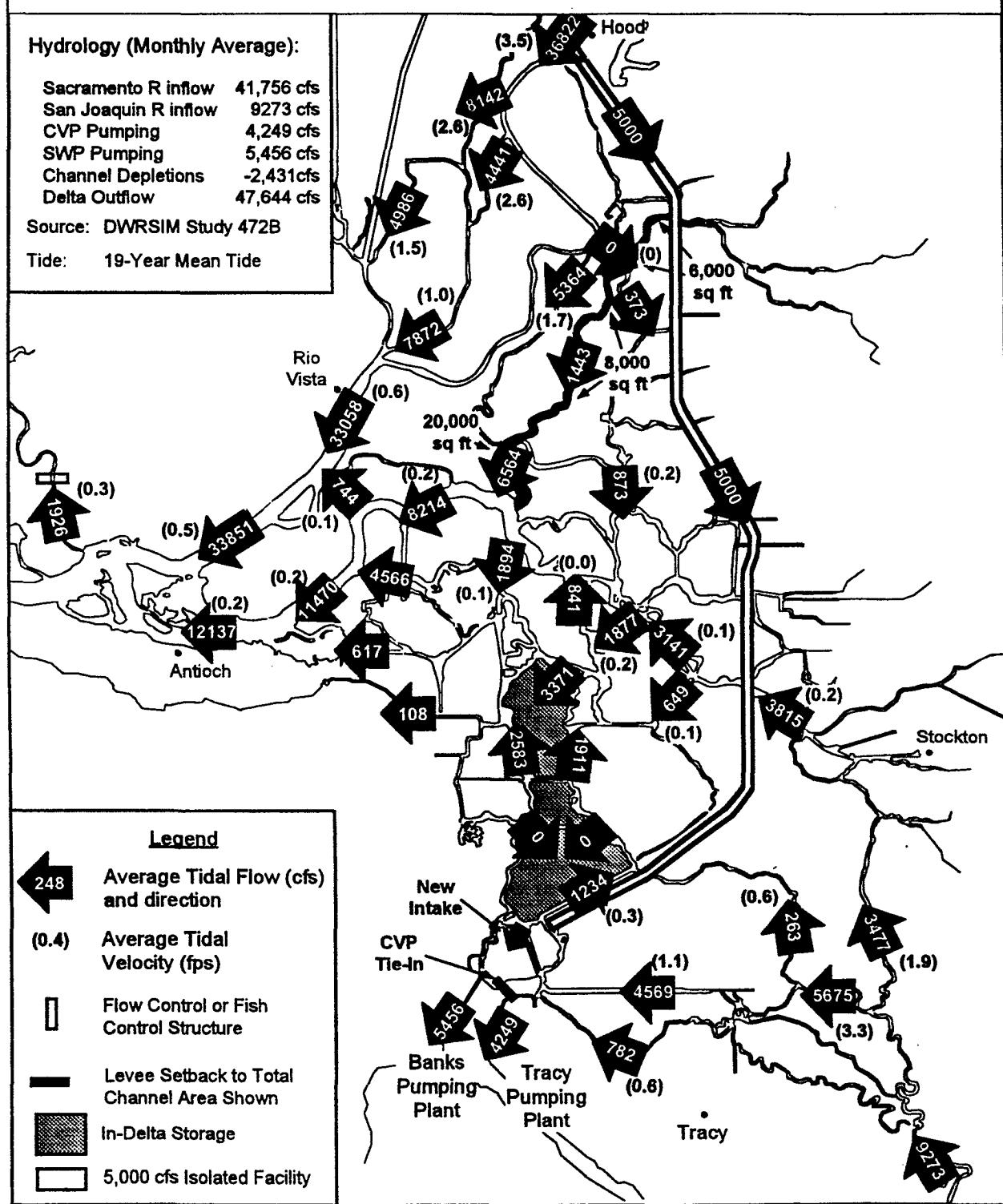
Figure 12
Flows and Water Levels In South Delta
Low Delta Inflows and Low Delta Exports (July 1991)
Alternative 3A



Department of Water Resources, Delta Modeling Section

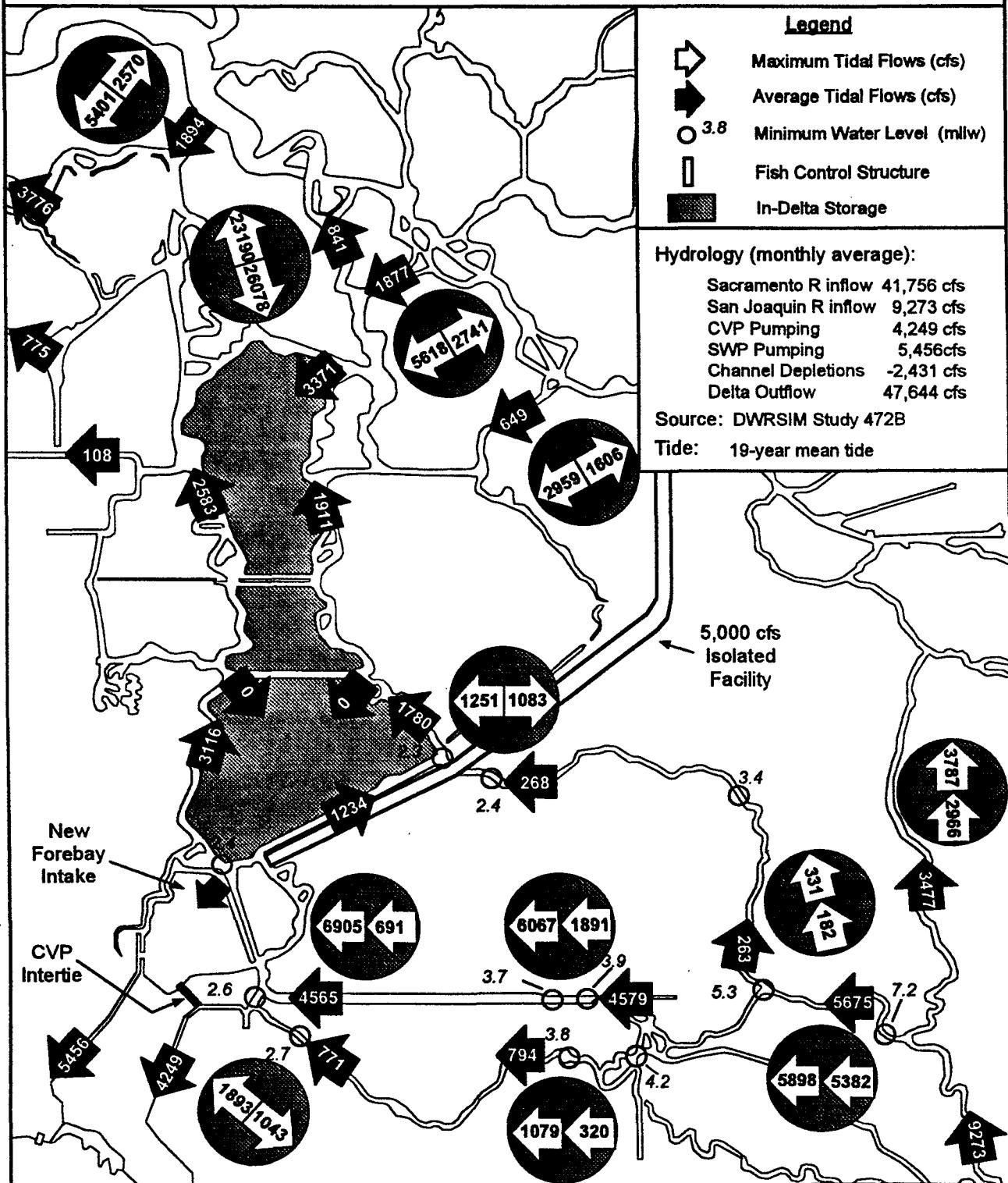
Figure 13

**Average Flows and Velocities
High Delta Inflow, high Delta Exports (February 1979)
Alternative 3B**



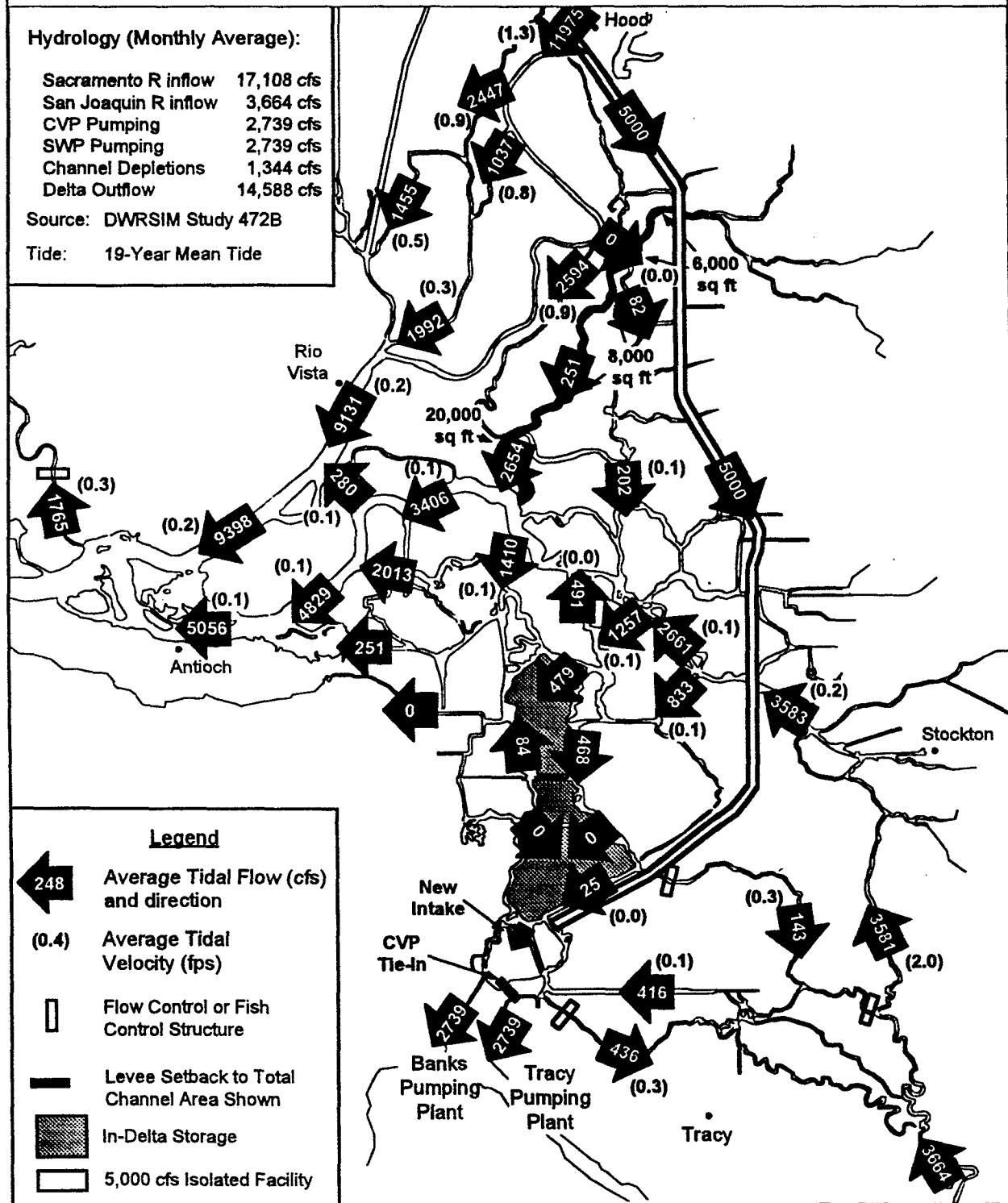
Department of Water Resources, Delta Modeling Section

Figure 14
Flows and Water Levels in South Delta
High Delta Inflows and High Delta Exports (February 1979)
Alternative 3B



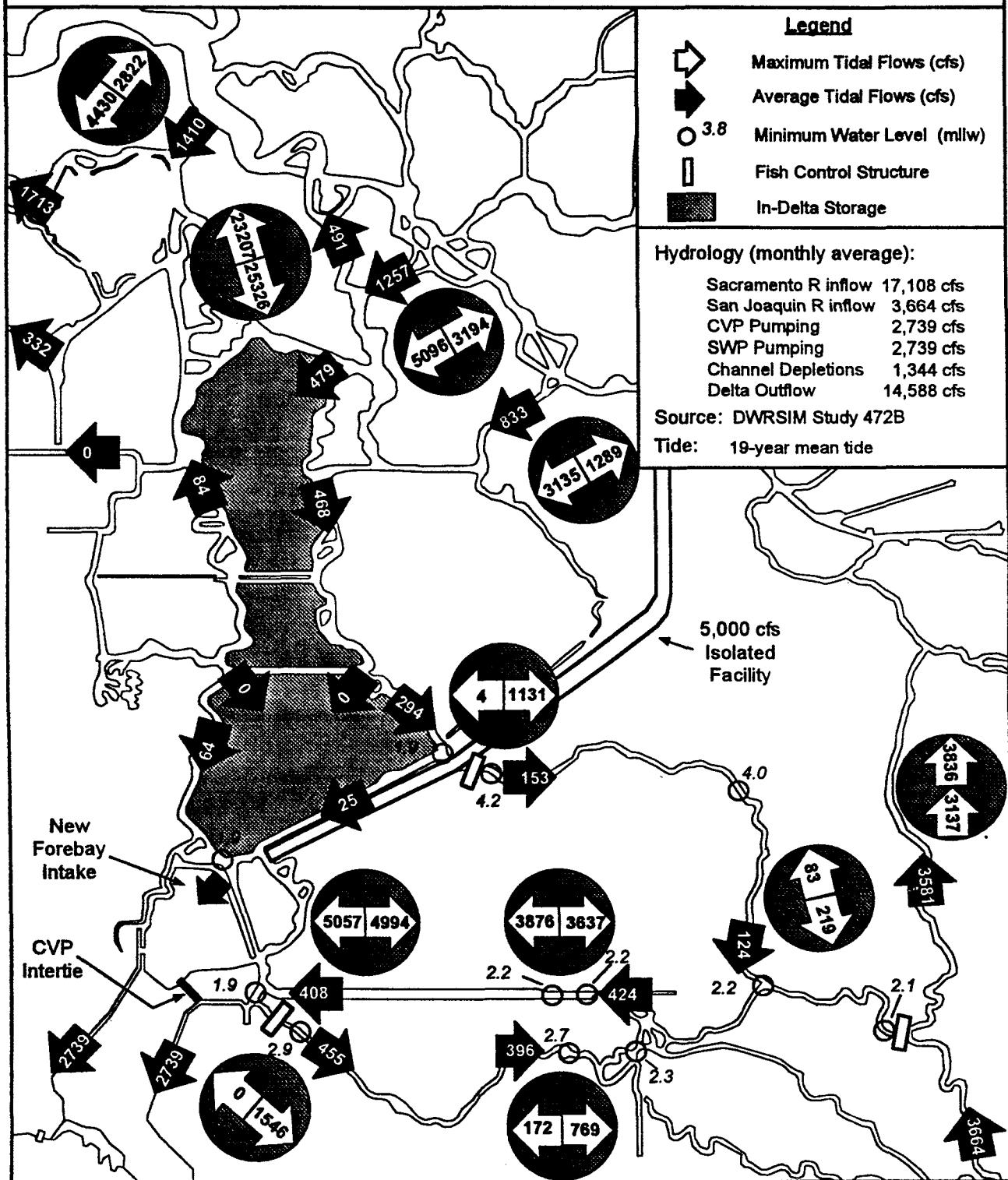
Department of Water Resources, Delta Modeling Section

Figure 15
Average Flows and Velocities
Medium Delta Inflow, Low Delta Exports (April 1981)
Alternative 3B



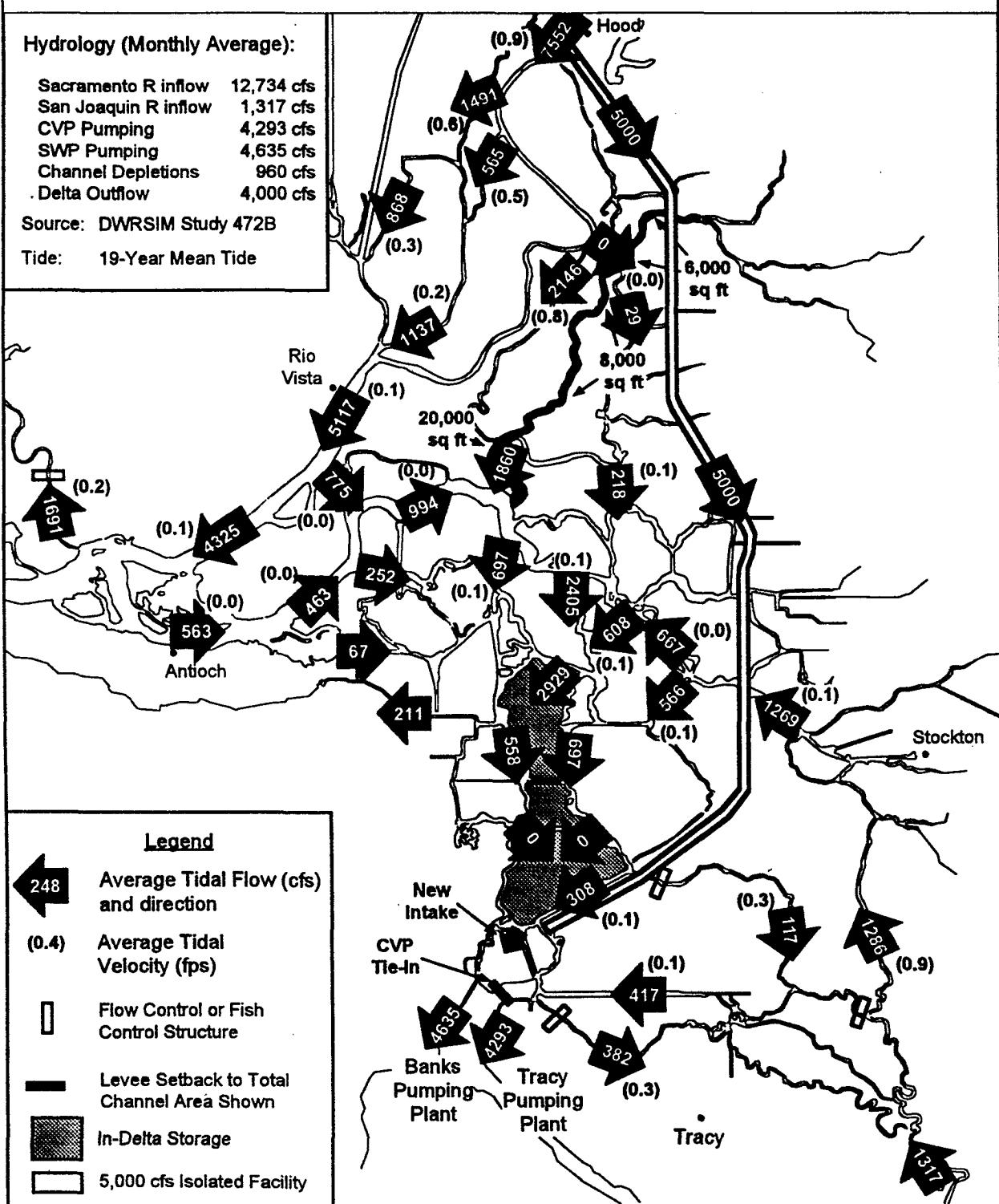
Department of Water Resources, Delta Modeling Section

Figure 16
Flows and Water Levels in South Delta
Medium Delta Inflows and Low Delta Exports (April 1981)
Alternative 3B



Department of Water Resources, Delta Modeling Section

Figure 17
Average Flows and Velocities
Low Delta Inflow, High Delta Exports (October WY 1990)
Alternative 3B



Department of Water Resources, Delta Modeling Section

Figure 18
Flows and Water Levels in South Delta
Low Delta Inflows and High Delta Exports (October WY 1990)
Alternative 3B

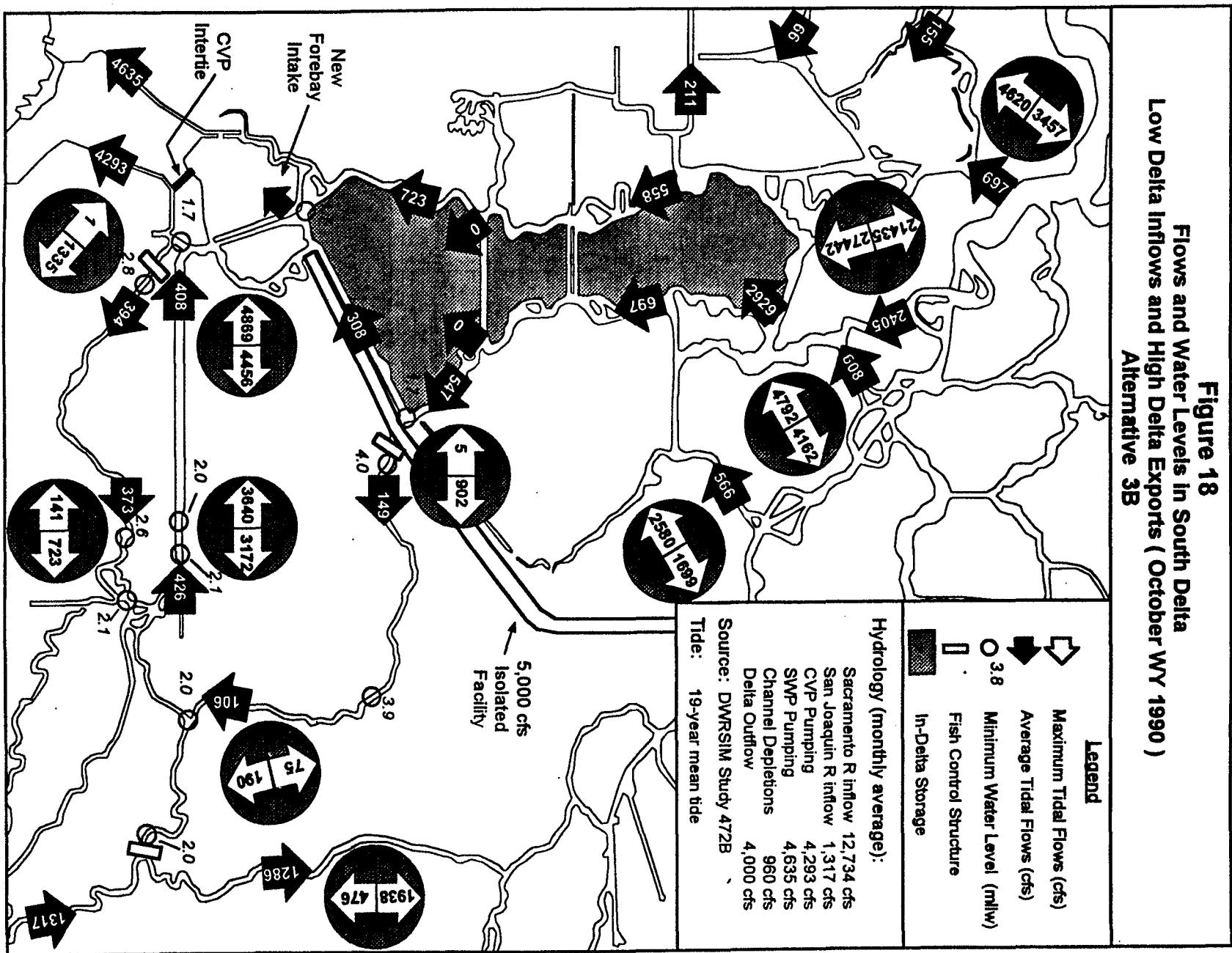
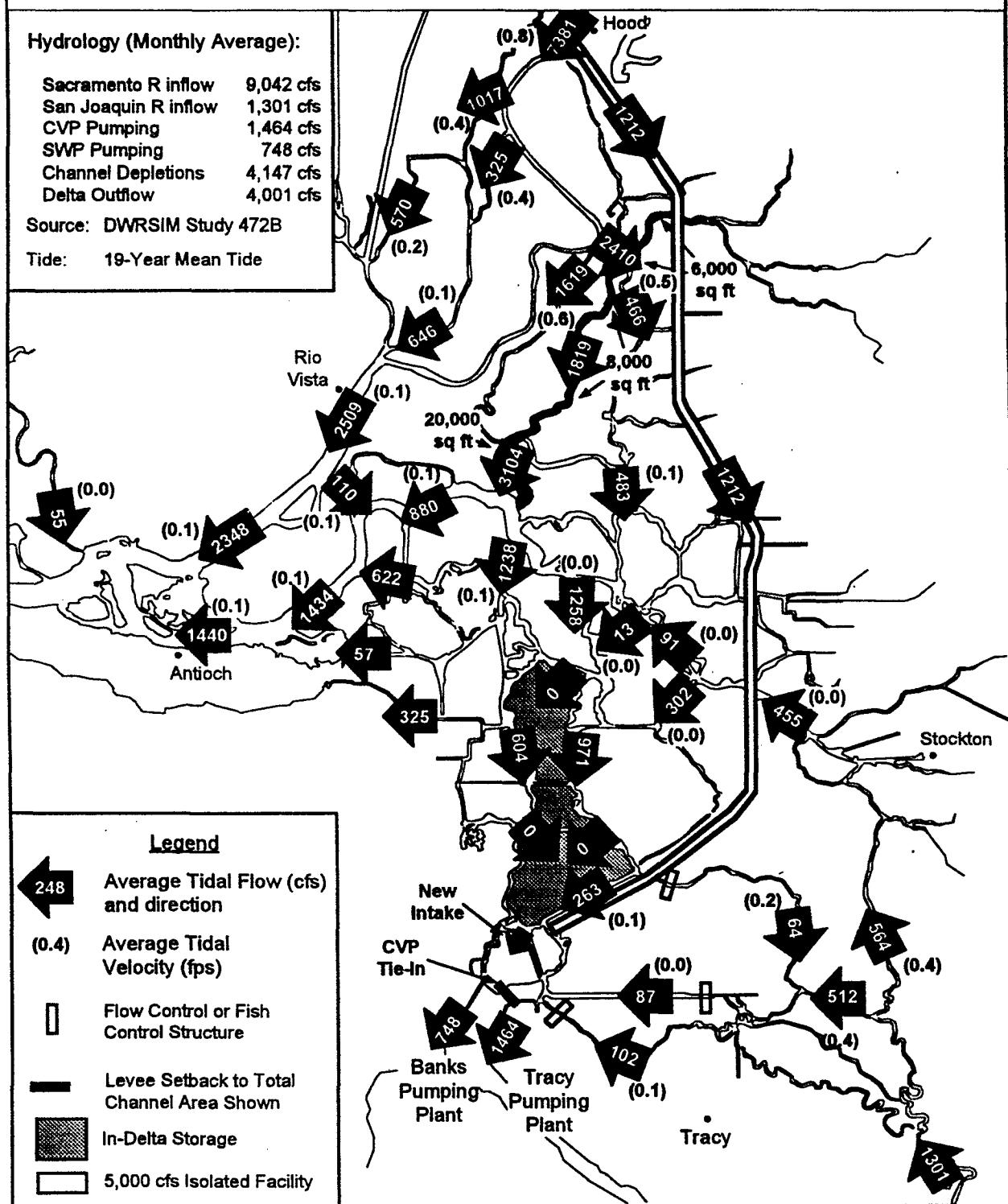
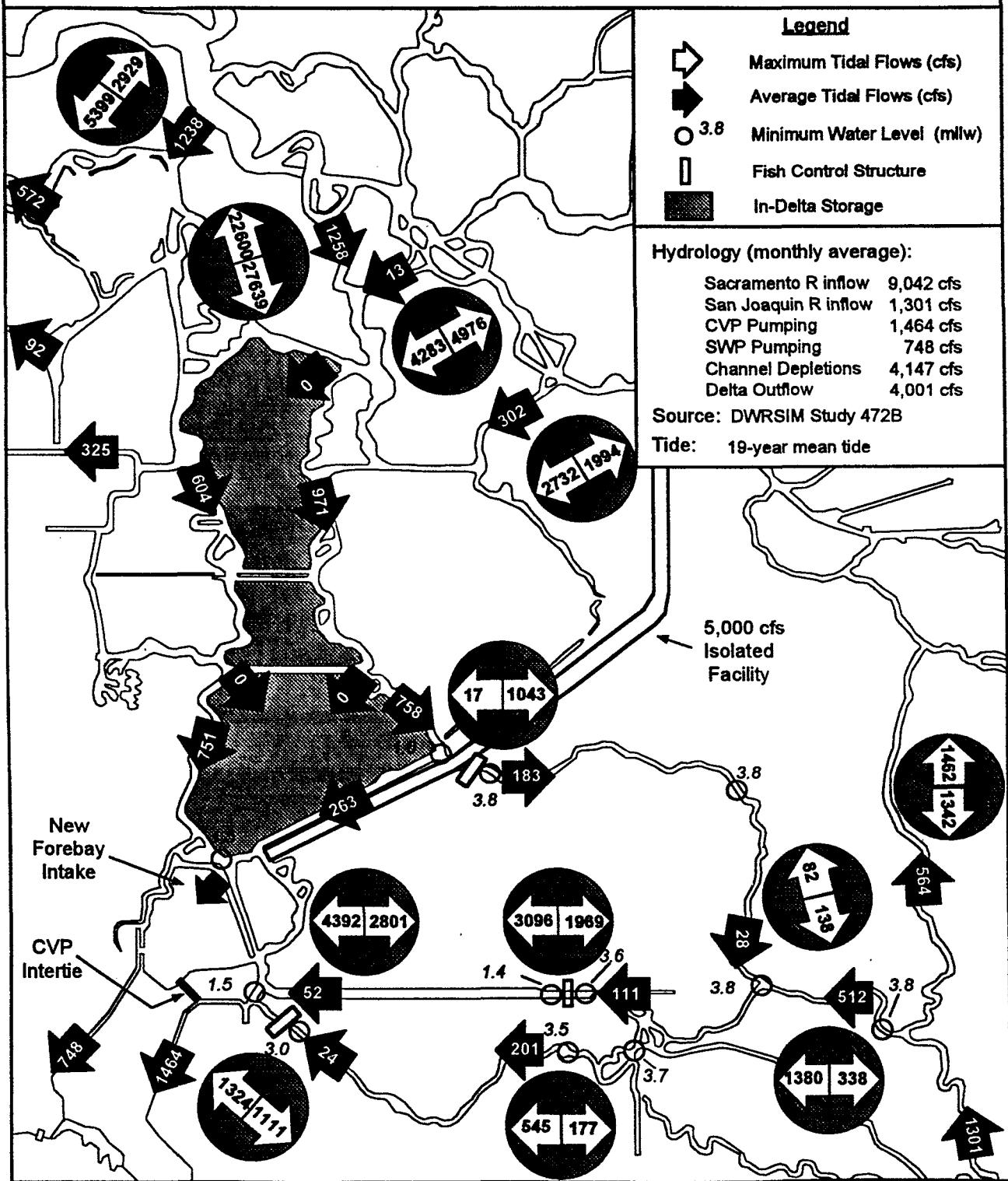


Figure 19
Average Flows and Velocities
Low Delta Inflow, Low Delta Exports (July 1991)
Alternative 3B



Department of Water Resources, Delta Modeling Section

Figure 20
Flows and Water Levels in South Delta
Low Delta Inflows and Low Delta Exports (July 1991)
Alternative 3B



Department of Water Resources, Delta Modeling Section

Figure 21

**Location of Discrete Injection Points
Mass Tracking Study**

• Sacramento

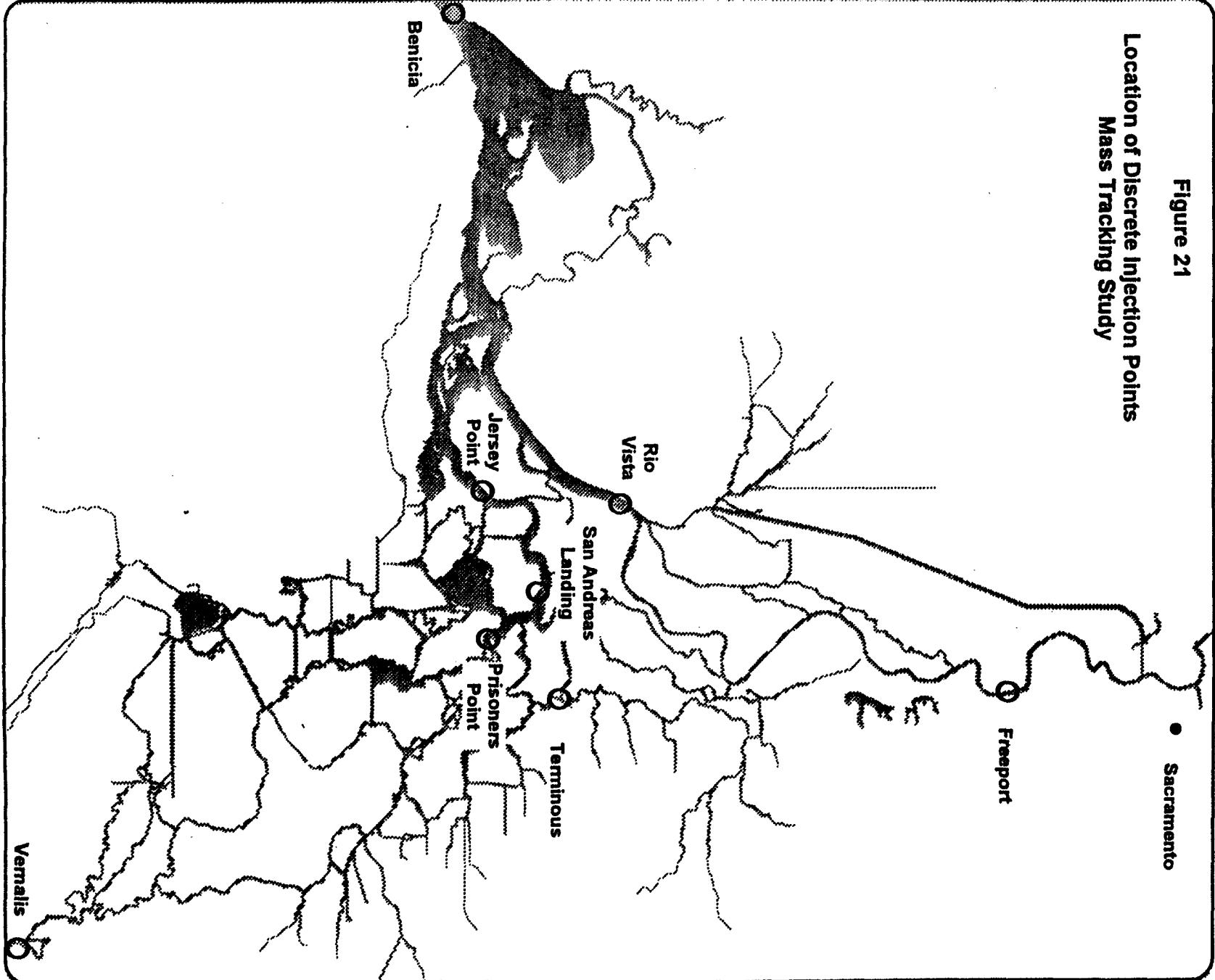
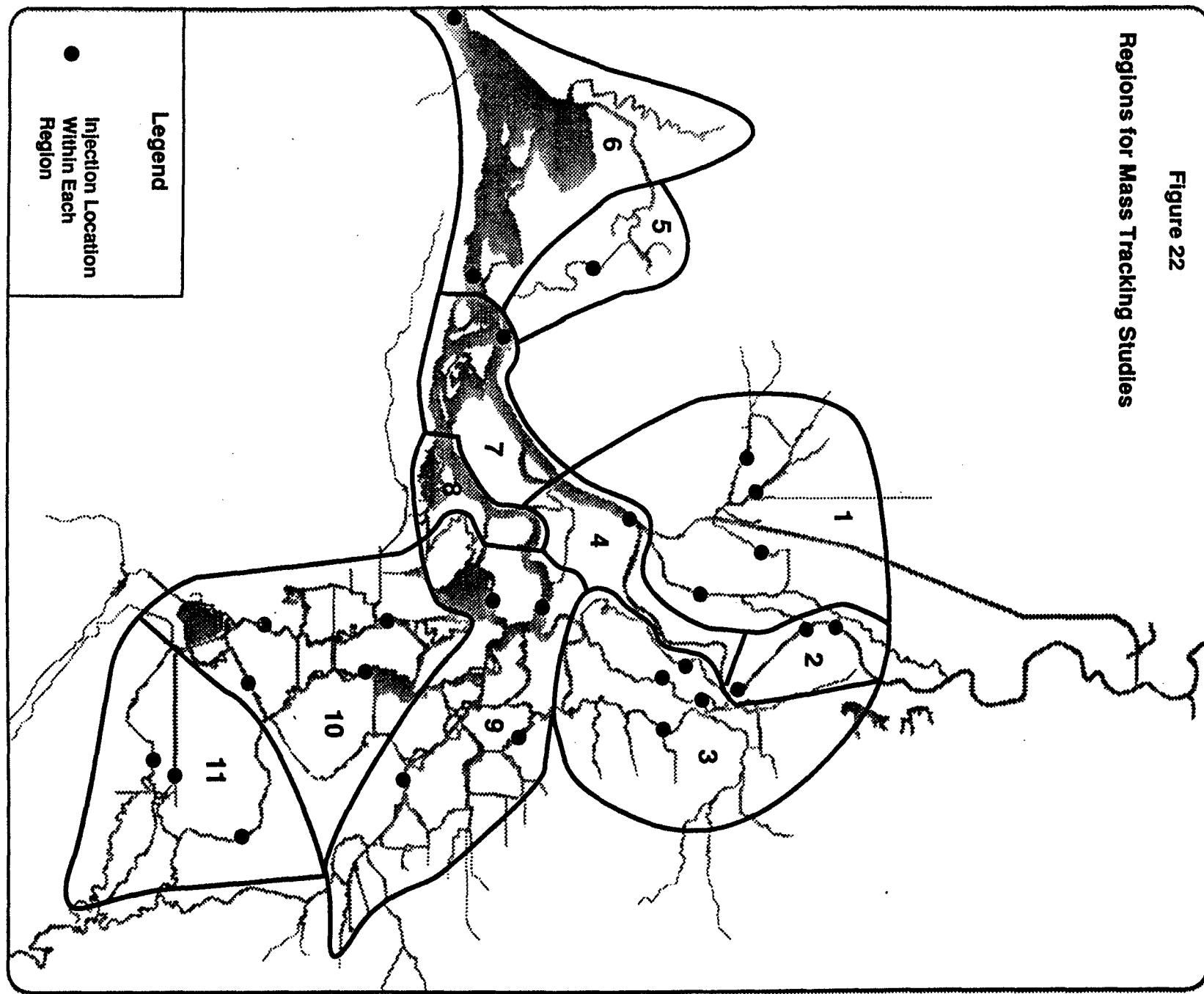


Figure 22

Regions for Mass Tracking Studies



53

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Table 25
Mass Tracking Study for High Delta Inflows and High Delta Exports
 (February 1981 - Hydrology from DWRDSM Study 472B)

Summary of Mass Fate

Alternative 3A

Point of Injection	Days After Injection	In Delta %	Islands %	Exports %	CCC %	Chips %
Vernalis		49.72	0.47	49.6	0.19	0
Terminous		99.42	0.01	0	0	0.57
Freeport		11.54	0.01	11.93	0	76.52
Rio Vista	10	2.05	0	0	0	97.95
Jersey Point	Days	11.06	0.02	0	0	88.91
San Andreas Landing		40.71	0.02	0	0	59.26
Prisoners Point		79.69	0.02	0	0	20.28
Benicia		0	0	0	0	0
Vernalis		41.25	0.54	49.73	0.63	7.82
Terminous		33.68	0.03	0	0	86.29
Freeport		1.35	0.01	11.93	0	86.7
Rio Vista	20	0.14	0	0	0	99.86
Jersey Point	Days	0.82	0.02	0	0	99.16
San Andreas Landing		2.86	0.03	0	0	97.11
Prisoners Point		11.51	0.04	0	0	88.46
Benicia		0	0	0	0	0
Vernalis		16.8	0.56	49.76	0.95	31.91
Terminous		9.27	0.04	0	0	90.69
Freeport		0.31	0.01	11.93	0	87.72
Rio Vista	30	0.02	0	0	0	99.98
Jersey Point	Days	0.12	0.02	0	0	99.86
San Andreas Landing		0.41	0.03	0	0	99.56
Prisoners Point		1.62	0.04	0	0	98.34
Benicia		0	0	0	0	0
Vernalis		0.94	0.57	49.78	1.01	47.67
Terminous		1.38	0.04	0	0	98.58
Freeport		0.04	0.01	11.93	0	87.97
Rio Vista	60	0	0	0	0	99.99
Jersey Point	Days	0	0.02	0	0	99.97
San Andreas Landing		0	0.03	0	0	99.96
Prisoners Point		0	0.04	0	0	99.95
Benicia		0	0	0	0	0

Department of Water Resources, Delta Modeling Branch

Table 26
Mass Tracking Study for High Delta Inflows and High Delta Exports (February 1979)
Summary of Mass Fate By Region
(Values in %)

Alternative 3A

Region Mass Injected		Region Mass Reported										Total
		1	2	3	4	5	6	7	8	9	10	
1	After 10 Days	23.8		0.9	0.8	13	3.8	0.2	0.1			42.5
2		0.1		0.1	0.9	17.4	8.2	0.9	2.2			29.9
3				1.9	1	1.1	14.6	33.5	8.6	33.4	0.1	94.2
4				0.1	0.6	13.6	1	0.1	0.1			15.5
5						1.2	50.2					51.4
6							1.5					1.5
7						0.1	5.7					5.8
9						0.2	1.1	15.7	10.4	3.2	44.9	5.7
10								1.2	1.6	12.1	62.7	0.1
11								0.1	0.3	2.5	38	0.1
1	After 20 Days	8.1		0.2	0.2	2.5	0.8	0.1				11.9
2		0.1		0.1	2.3	0.8	0.2	0.4				3.9
3				0.6	0.4	0.9	13.3	12.1	3.6	6.8	0.1	37.9
4				0.1	0.9	0.1						1.1
5						0.6	7.5					8.1
6							0.1					0.1
7						0.1	0.4					0.5
9						0.3	0.5	7.7	8.2	3.2	27.5	2.5
10						0.2	0.4	5.8	10.9	4.7	18	29.3
11						0.1	0.1	1.9	4.9	2.4	8.7	19.5
1	After 30 Days	3.9		0.1	0.9	0.3						5.3
2				0.1	0.6	0.1						1
3				0.4	0.3	5.1	2.2	0.5	2.1			10.9
4						0.3						0.3
5						0.4	4.3					4.7
6												
7							0.2					0.2
9						0.3	0.4	5.3	5.2	2.4	17.3	1.1
10						0.2	0.6	8.5	9.8	3.6	12	13.2
11						0.1	0.3	4.5	5.7	2	6.7	8.4
1	After 60 Days	0.7				0.2						0.9
2						0.1						0.2
3				0.2		0.3	0.1	0.1	0.3			1
4						0.1						0.1
5						0.2	1.9					2.1
6												
7							0.1					0.1
9						0.1	1.3	1	0.4	2.5	0.1	5.4
10						0.1	1.6	1.2	0.4	1.2	0.8	5.3
11						0.1	1	0.7	0.2	0.8	0.5	3.3

Department of Water Resources, Delta Modeling Section

Table 27
Mass Tracking Study for Medium Delta Inflows and Low Delta Exports
 (April 1981 - Hydrology from DWRDSM Study 472B)

Summary of Mass Fate

Alternative 3A

Point of Injection	Days After Injection	In Delta %	Islands %	Exports %	CCC %	Chipps %
Vernalis		76.88	9.51	13.48	0	0
Terminous		94.78	5.22	0	0	0
Freeport		61.06	2	29.45	0	7.49
Rio Vista	10	62.56	0.9	0	0	36.55
Jersey Point	Days	79.13	1.27	0	0	19.6
San Andreas Landing		95.07	1.38	0	0	3.57
Prisoners Point		98.56	1.21	0	0	0.24
Benicia		0	0	0	0	0
Vernalis		71.83	13.88	13.98	0	0.17
Terminous		91.71	8.07	0	0	0.21
Freeport		27.62	2.52	29.45	0	40.3
Rio Vista	20	17.22	1.15	0	0	81.62
Jersey Point	Days	28.25	1.71	0	0	70.04
San Andreas Landing		57.03	2.27	0	0	40.7
Prisoners Point		84.46	2.43	0	0	13.1
Benicia		0	0	0	0	0
Vernalis		66.87	15.44	14.06	0.04	3.46
Terminous		84.19	9.66	0	0	6.15
Freeport		12.25	2.75	29.45	0	55.29
Rio Vista	30	5.22	1.21	0	0	93.56
Jersey Point	Days	9.12	1.82	0	0	89.06
San Andreas Landing		25.11	2.6	0	0	72.29
Prisoners Point		55.86	3.17	0	0	41.17
Benicia		0	0	0	0	0
Vernalis		29.14	17.61	14.08	0.1	38.94
Terminous		17.72	12.1	0	0	70.18
Freeport		1.27	3.07	29.45	0	65.82
Rio Vista	60	0.13	1.24	0	0	98.63
Jersey Point	Days	0.24	1.87	0	0	97.9
San Andreas Landing		0.91	2.77	0	0	96.32
Prisoners Point		5.45	3.84	0	0	90.71
Benicia		0	0	0	0	0

Department of Water Resources, Delta Modeling Section

Table 28
Mass Tracking Study for Medium Delta Inflows and Low Delta Exports (April 1981)
Summary of Mass Fate By Region
(Values in %)

Alternative 3A

Region Mass Injected		Region Mass Reported										Total
		1	2	3	4	5	6	7	8	9	10	
1	After 10 Days	40.2		5.7	2.2	12.4	30.5	3.5	1.5	0.1		96
2		1.4		0.7	4.2	3.5	20.3	41.2	12.5	10.6	0.3	94.7
3				48.8	2.2		0.2	4.7	8.4	12.2	0.2	76.9
4		0.1		1.4	5.4	34.6	43.9	4.3	2.8	0.2		92.7
5					1.4	70.4	0.1					71.9
6					0.7	16.2	2.3					19.2
7					2.1	40.2	6.3					48.6
9					1.5	0.9	5.2	23.5	7.7	48.2	9.8	0.1
10					0.1			1.1	1	3.2	55.6	6.4
11										18.9	51.5	70.4
1	After 20 Days	27.6		1	1.7	21.4	12.6	1.1	0.9	0.1		66.4
2		0.7		0.1	0.6	2.2	28.2	19.6	2.9	4.2	0.5	59
3				30.9	2.1	0.7	5.7	13.8	10.2	22.8	0.6	86.8
4				0.1	1.8	28.7	10.8	0.8	1	0.2		43.5
5					0.7	13.6	0.2					14.5
6					0.1	3.5	0.3					3.9
7					0.4	9.3	0.8					10.5
9					1.8	1.5	14.9	19	9.4	27.8	6.6	0.6
10					0.1	0.1	1	2.9	1	2.2	26.3	7
11										14.6	31.5	46.1
1	After 30 Days	20.9		0.4	0.8	11.5	4.8	0.4	0.4	0.1		39.3
2		0.5		0.2	1.1	16.1	8	1	1.7	0.4		29.1
3				17.1	1.7	1.2	11	18.4	7.8	20.3	0.8	78.4
4				0.7	11.3	3.1	0.3	0.3	0.3	0.1		15.8
5					0.5	6	0.1					6.6
6						0.8	0.1					0.9
7					0.2	2.3	0.2					2.7
9					1.3	1.4	15.3	19	6.6	12.7	4.6	0.5
10					0.1	0.2	2	2.8	0.7	1.3	13	5.8
11										10.4	21	31.4
1	After 60 Days	10.4		0.1	0.1	1.1	0.4					12.3
2		0.2		0.1	1.3	0.4	0.1	0.1	0.1			2.3
3				3.1	0.4	0.6	7.6	6.5	2.1	5.8	0.5	26.7
4				0.1	0.6	0.1						0.9
5					0.2	2.2						2.4
6						0.1						0.1
7							0.3					0.3
9					0.1	0.4	5.2	2.8	0.6	1.6	1	0.2
10					0.1	0.8	0.5	0.1	0.2	2.4	2	6.1
11										3.4	6.2	9.6

Department of Water Resources, Delta Modeling Section

Table 29
Mass Tracking Study for Low Delta Inflows and High Delta Exports
 (October WY 1990 - Hydrology from DWRDSM Study 472B)

Summary of Mass Fate

Alternative 3A

Point of Injection	Days After Injection	In Delta %	Islands %	Exports %	CCC %	Chipps %
Vernalis	10 Days	95.09	4.91	0	0	0
Terminous		94.67	5.33	0	0	0
Freeport		54.81	5.04	39.87	0	0.28
Rio Vista		91.77	0.77	0.15	0.02	7.29
Jersey Point		92.01	1.09	3.31	0.38	3.21
San Andreas Landing		97.63	0.91	1.25	0.15	0.07
Prisoners Point		97.85	0.9	1.2	0.04	0.01
Benicia		0	0	0	0	0
Vernalis	20 Days	58.3	8.55	33.1	0.05	0
Terminous		89.5	8.43	2.01	0.06	0
Freeport		44.84	5.61	41.85	0.2	7.38
Rio Vista		64.49	1.41	3.91	0.43	29.75
Jersey Point		68.32	2.07	13.41	1.45	14.76
San Andreas Landing		80.92	2.17	14.08	1.19	1.65
Prisoners Point		60	3.08	35.4	1.26	0.26
Benicia		0	0	0	0	0
Vernalis	30 Days	43.01	10.38	46.32	0.27	0
Terminous		74.58	10.82	14.12	0.46	0.02
Freeport		33.3	6.1	46.21	0.51	13.53
Rio Vista		47.04	1.89	7.81	0.82	42.41
Jersey Point		51.36	2.68	19.5	2.03	24.42
San Andreas Landing		58.4	3.44	31.42	2.17	4.57
Prisoners Point		31.02	4.8	61.26	2.17	0.73
Benicia		0	0	0	0	0
Vernalis	60 Days	10.98	14.05	73.72	1.07	0.12
Terminous		26.68	18.01	53	1.76	0.52
Freeport		12.02	7.16	55.67	1.09	23.49
Rio Vista		17.34	2.86	16.62	1.55	61.58
Jersey Point		19.33	3.86	30.81	2.96	43.04
San Andreas Landing		17.18	5.84	59.7	3.61	13.65
Prisoners Point		5.86	7.05	81.72	2.89	2.44
Benicia		0	0	0	0	0

Department of Water Resources, Delta Modeling Section

Table 30
Mass Tracking Study for Low Delta Inflows and High Delta Exports (Oct WY 1990)
Summary of Mass Fate By Region
(Values in %)

		Alternative 3A											Total
Region	Mass Injected	Region Mass Reported											Total
		1	2	3	4	5	6	7	8	9	10	11	
After 10 Days	1	49.4		13.4	0.6	1.2	22.6	5.6	4	0.4			97.2
	2		4.9	2.4	13.2	0.8	1.7	34	10.6	27.2	2.1		97
	3			49.5	0.3			0.4	1.7	17.7	1.6		71.2
	4			1.3	0.1	10.4	2.3	5.8	46.8	12.1	17	2.2	98
	5						1.6	76.9	0.4				78.9
	6						0.1	2	17.4	14	0.6	0.1	34.2
	7						0.3	5	37.5	33.7	1.6	0.3	78.5
	9						1.9	0.2	0.4	5.8	7.8	59.1	88.2
	10									0.1	0.1	2.8	5
	11											19.4	56.5
After 20 Days	1	30.8		4.8	2	9.7	23.7	5.8	7.5	1.8			86.2
	2		1.9	0.9	3	2.6	13.1	26.6	7.9	22	8.5	0.1	86.4
	3			45.1	0.4	0.1	0.2	1.5	1.6	11.6	5.3	0.1	65.8
	4			0.3		2.5	3.1	18.7	30.7	8.1	14.8	5.2	83.5
	5						1.2	19.7	3.3				24.3
	6						0.2	1	9.6	8	1	0.5	20.5
	7						0.6	2.3	22.2	19.1	2.7	1.3	48.3
	9						1.3	0.4	2.1	7.5	5	42.7	72
	10									0.1	0.1	0.9	1.4
	11											16.5	42.3
After 30 Days	1	22.7		2.5	1.7	11.4	18.4	4.8	7.1	2			70.7
	2		1.2	0.6	1.7	1.8	13.1	19	6	14.9	8	0.2	66.6
	3			42.2	0.3	0.1	0.5	1.7	1.2	8.3	5	0.2	59.6
	4			0.2		1.6	2.1	16	21.3	6.2	10.8	4.5	62.6
	5						0.9	9.8	2.6	0.2			13.5
	6						0.2	0.6	5.5	5.2	1	0.7	13.4
	7						0.5	1.5	12.9	12.4	2.4	1.7	31.9
	9						0.9	0.5	2.9	6.8	3.4	30.9	58.4
	10									0.1		0.6	1.9
	11											13.6	32.8
After 60 Days	1	13		0.8	0.7	5.4	7.5	2.2	3.3	1.5	0.1		34.5
	2		0.6	0.3	0.6	0.7	5.2	7.1	2.2	4.3	2.7	0.4	24.2
	3			31.2	0.2	0.1	0.7	1.3	0.7	6.1	2.5	0.3	43
	4			0.1		0.6	0.8	5.7	7.5	2.3	3.6	2	22.7
	5						0.3	3.1	0.8	0.2			4.6
	6						0.1	0.2	1.4	1.6	0.4	0.5	4.4
	7						0.2	0.5	3.5	3.7	1	1.2	10.6
	9						0.3	0.3	2.1	3.3	1.2	12	4.6
	10											0.3	0.5
	11											6.1	14.7

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Table 31
Mass Tracking Study for Low Delta Inflows and Low Delta Exports
(July 1991 - Hydrology from DWRDSM Study 472B)

Summary of Mass Fate

Alternative 3A

Point of Injection	Days After Injection	In Delta %	Islands %	Exports %	CCC %	Chipps %
Vernalis		46.14	53.87	0	0	0
Terminous		87.1	12.9	0	0	0
Freeport		73.37	11.26	15.36	0	0.01
Rio Vista	10	94.52	3.59	0	0.01	1.89
Jersey Point	Days	94.03	3.24	0.05	0.22	2.45
San Andreas Landing		96.29	3.59	0.01	0.05	0.06
Prisoners Point		96.73	3.24	0	0.02	0.01
Benicia		0	0	0	0	0
Vernalis		37.25	62.59	0.01	0	0
Terminous		73.28	26.64	0.03	0.04	0
Freeport		66.06	16.4	15.43	0.15	1.96
Rio Vista	20	76.98	6.27	0.18	0.27	16.31
Jersey Point	Days	75.78	6.07	1.31	1.22	15.62
San Andreas Landing		88.47	7.29	0.8	0.95	2.49
Prisoners Point		88.49	9.13	1.16	0.83	0.39
Benicia		0	0	0	0	0
Vernalis		30.2	69.18	0.38	0.01	0
Terminous		58.31	39.78	1.26	0.59	0.06
Freeport		56.28	19.85	16.05	0.64	7.16
Rio Vista	30	58.88	8.26	0.83	0.73	31.28
Jersey Point	Days	57.69	8.06	2.61	1.92	29.73
San Andreas Landing		74.89	11.24	3.07	2.23	8.57
Prisoners Point		69.67	18.54	7.51	2.83	1.46
Benicia		0	0	0	0	0
Vernalis		10.11	81.47	7.68	0.44	0.01
Terminous		22.1	60.43	12.26	3.26	1.95
Freeport		22.97	28.73	20.47	2.28	25.3
Rio Vista	60	21.37	12.03	2.55	1.66	62.3
Jersey Point	Days	20.86	11.22	4.48	2.87	60.57
San Andreas Landing		30.05	21.09	10.98	4.95	32.92
Prisoners Point		22.04	37.63	25.53	6.83	7.96
Benicia		0	0	0	0	0

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Table32
Mass Tracking Study for Low Delta Inflows and Low Delta Exports (July 1991)
Summary of Mass Fate By Region
(Values in %)

Alternative 3A

Region Mass Injected		Region Mass Reported										Total
		1	2	3	4	5	6	7	8	9	10	
1	After 10 Days	56.7		14.8		0.2	10	2.8	1.2	0.1		85.7
2		9.7		5.1	14.1		0.1	8.6	9.4	38.6	0.8	86.4
3		0.1		7.3	2.4			1.5	11.5	61.5	1.7	85.9
4		10		1.5	22.1	0.1	2	31	10.4	15.4	0.6	93.1
5					91.4		5	3.1				99.5
6					0.2	0.3	18.1	13.5	0.2	0.1		32.3
7					0.7	0.7	37.2	35.1	0.8	0.3		74.8
9					0.2	4.3	0.5	10.8	10.6	48.9	14.5	89.9
10								0.1	0.2	0.4	22.8	1.3
11										1.7	20.8	22.6
1	After 20 Days	35.9		6	0.1	4	17.3	4.2	3.3	0.6		71.2
2		4.1		0.3	6.6	0.1	3.7	20.2	9.9	27.8	6.5	79.2
3		0.2		0.1	3.9		0.9	10.5	9.5	40.7	10.5	76.3
4		3.8		0.1	7.5	0.2	11	35.3	9.3	13.8	3.3	84.4
5					73.3	12.9	6.9	0.1				93.2
6					0.2	0.3	9.2	7.8	0.4	0.2		18.1
7					0.6	0.6	21.5	19.9	1.2	0.6	0.1	44.4
9					0.2	3	0.1	3.4	16.1	6.5	26.6	11.6
10						0.1		0.4	0.2	0.3	5	0.1
11										6.6	7.8	14.4
1	After 30 Days	21.9		2.8	0.1	6.5	15.7	3.3	3	0.9		54.3
2		2.6		0.1	3.8	0.1	7.1	21.6	7	17.3	10.1	69.9
3		0.2		2.9	0.1	3.2	14.7	6.6	24.2	15.6	0.2	67.7
4		2.3		3.7	0.3	13.8	29.9	6.6	9.3	4.4		70.6
5				0.1	61	15	7.6	0.1	0.1			84
6				0.2	0.2	5.3	4.9	0.4	0.2	0.1		11.3
7				0.5	0.5	12.8	12.7	1	0.6	0.2		28.4
9				0.1	1.9	0.1	5.5	15.5	4.3	17.3	6.9	0.2
10					0.1		0.1	0.5	0.1	0.1	2.5	
11										6.4	2.6	9
1	After 60 Days	4.3		0.6	0.2	4.4	6.9	1.1	1	0.4		19
2		0.7		0.1	1	0.2	6.8	11.8	2.3	4	4.2	0.1
3		0.1			1	0.2	5.3	10.3	2.2	5.4	6.3	0.2
4		0.6		0.9	0.4	8.1	12.6	2.1	2.5	1.8		28.9
5				0.1	37.7	12.6	5.4	0.3	0.1			56.2
6				0.1	0.2	1.3	1.4	0.2	0.1			3.3
7				0.2	0.4	3.2	3.6	0.4	0.3	0.1		8.3
9				0.6	0.2	4.4	7.3	1.3	5.2	2.9	0.1	21.9
10						0.1	0.2			0.3		0.7
11										0.8	0.1	0.8

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Table 33
Mass Tracking Study for Medium Delta Inflows and Low Delta Exports
 (February 1979 - Hydrology from DWRDSM Study 472B)

Summary of Mass Fate

Alternative 3B

Point of Injection	Days After Injection	In Delta %	Islands %	Exports %	CCC %	Chipps %
Vernalis		64.61	23.89	10.82	0.42	0.19
Terminous		99.69	0.03	0	0	0.28
Freeport		11.69	0.06	11.93	0	76.32
Rio Vista	10	2.2	0	0	0	97.79
Jersey Point	Days	11.58	0.02	0	0	88.4
San Andreas Landing		42.6	0.02	0	0	57.38
Prisoners Point		84.25	0.07	0	0	15.67
Benicia		0	0	0	0	0
Vernalis		31.85	35.46	10.83	1.08	20.91
Terminous		42.09	0.16	0	0	57.74
Freeport		1.34	0.06	11.93	0	86.65
Rio Vista	20	0.14	0	0	0	99.86
Jersey Point	Days	0.73	0.02	0	0	99.24
San Andreas Landing		2.7	0.03	0	0	97.28
Prisoners Point		16.69	0.14	0	0	83.17
Benicia		0	0	0	0	0
Vernalis		9.13	36.69	10.83	1.08	42.19
Terminous		10.93	0.23	0	0	88.84
Freeport		0.32	0.06	11.93	0	87.65
Rio Vista	30	0.01	0	0	0	99.98
Jersey Point	Days	0.09	0.02	0	0	99.89
San Andreas Landing		0.33	0.03	0	0	99.64
Prisoners Point		2.61	0.15	0	0	87.24
Benicia		0	0	0	0	0
Vernalis		0.15	36.91	10.84	1.08	50.94
Terminous		1.45	0.33	0	0	98.22
Freeport		0.04	0.06	11.93	0	87.91
Rio Vista	60	0	0	0	0	99.99
Jersey Point	Days	0	0.02	0	0	99.97
San Andreas Landing		0	0.03	0	0	99.97
Prisoners Point		0	0.15	0	0	99.84
Benicia		0	0	0	0	0

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Table 34
Mass Tracking Study for High Delta Inflows and High Delta Exports (February 1979)
Summary of Mass Fate By Region
 (Values in %)

Alternative 3B												
Region Mass Injected		Region Mass Reported										Total
		1	2	3	4	5	6	7	8	9	10	
After 10 Days	1	17.9		1.2	1	17.4	5.1	0.3	0.1			43
	2	0.1		0.1	0.9	17.2	8.5	1	2.1			30
	3		2	1.3	1	13.8	33.2	9.8	33.6	0.1		94.7
	4			0.1	0.6	13.7	1.1	0.1	0.1			15.8
	5					1.2	50					51.2
	6						1.5					1.6
	7					0.1	5.7					5.9
	9					0.1	1.2	15.9	10.4	2.3	41.2	2.2
	10					0.2	0.3	4.6	15.9	6.6	17.3	8.4
	11					0.2	0.6	7.6	5.3	18.3	17.4	49.3
After 20 Days	1	9.1		0.3	0.2	3.3	1.1	0.1				14.1
	2	0.1		0.1	2.3	0.7	0.2	0.4				3.9
	3		0.6	0.6	0.8	12.8	11.7	4.5	8.5	0.1		39.5
	4				0.1	0.9	0.1					1.1
	5					0.6	7.5					8.1
	6						0.1					0.1
	7					0.1	0.4					0.5
	9					0.3	0.4	5.6	5.7	2.7	26.3	0.3
	10					0.1	0.6	8.5	5.3	1.2	2.8	0.8
	11					0.1	0.6	8.1	6.6	1.5	3.7	1.5
After 30 Days	1	4.7		0.1	0.1	1.2	0.4					6.6
	2			0.1	0.6	0.1		0.1				1
	3		0.4	0.1	0.4	5.8	2.9	0.7	2.6			12.8
	4						0.3					0.3
	5					0.4	4.3					4.7
	6											
	7						0.2					0.2
	9					0.3	0.3	4.1	4	2	16.8	0.1
	10					0.1	2.3	1	0.3	0.5	0.1	
	11					0.2	2.7	1.3	0.3	0.8	0.3	
After 60 Days	1	0.9				0.2	0.1					1.2
	2					0.1						0.2
	3		0.2			0.3	0.1	0.1	0.4			1.1
	4					0.1						0.1
	5					0.2	1.9					2.1
	6											
	7						0.1					0.1
	9					0.1	0.1	1.2	1	0.4	2.5	
	10						0.1					0.1
	11						0.1			0.1		0.2

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Table 35

Mass Tracking Study for Medium Delta Inflows and Low Delta Exports
(April 1981 - Hydrology from DWRDSM Study 472B)

Summary of Mass Fate

Alternative 3B

Point of Injection	Days After Injection	In Delta %	Islands %	Exports %	CCC %	Chipps %
Vernalis		92.99	7.01	0	0	0
Terminous		94.67	5.33	0	0	0
Freeport		60.9	2.03	29.45	0	7.62
Rio Vista	10	62.76	0.9	0	0	36.34
Jersey Point	Days	79.73	1.28	0	0	19
San Andreas Landing		95.17	1.36	0	0	3.47
Prisoners Point		98.3	1.26	0	0	0.44
Benicia		0	0	0	0	0
Vernalis		84.81	15.08	0	0	0.11
Terminous		91.37	8.17	0	0	0.46
Freeport		27.54	2.55	29.45	0	40.36
Rio Vista	20	17.8	1.16	0	0	81.04
Jersey Point	Days	29.75	1.75	0	0	68.5
San Andreas Landing		58.15	2.29	0	0	39.56
Prisoners Point		81.51	2.57	0	0	15.92
Benicia		0	0	0	0	0
Vernalis		75.83	20.14	0.01	0	4.02
Terminous		81.25	9.79	0	0	8.97
Freeport		12.39	2.78	29.45	0	55.12
Rio Vista	30	5.64	1.23	0	0	93.13
Jersey Point	Days	10.14	1.87	0	0	87.99
San Andreas Landing		26.57	2.65	0	0	70.78
Prisoners Point		50.77	3.31	0	0	45.92
Benicia		0	0	0	0	0
Vernalis		21.37	27.71	0.05	0.05	50.79
Terminous		15.44	12.3	0	0	72.25
Freeport		1.33	3.12	29.45	0	85.71
Rio Vista	60	0.2	1.27	0	0	98.53
Jersey Point	Days	0.42	1.97	0	0	97.61
San Andreas Landing		1.35	2.92	0	0	95.73
Prisoners Point		4.15	4	0	0	91.85
Benicia		0	0	0	0	0

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Table 36
Mass Tracking Study for Medium Delta Inflows and Low Delta Exports (April 1981)
Summary of Mass Fate By Region
(Values in %)

Alternative 3B

Region Mass Injected		Region Mass Reported										Total
		1	2	3	4	5	6	7	8	9	10	
1	After 10 Days	40.2		5.8	2.2	12.3	30.4	3.6	1.5	0.1		96
2		1.5		0.7	4.2	3.6	20.6	41.4	12.4	10.9	0.3	95.5
3				49	2.2		0.1	4.1	8.5	12.5	0.2	76.5
4		0.1			1.5	5.4	34.4	43.9	4.4	2.9	0.1	92.7
5						1.5	70.3	0.1				71.9
6						0.7	16.3	2.4				19.5
7						2.1	40.4	8.6				49.1
9						1.6	0.9	5.1	23.3	8	47.9	8.9
10						0.2		0.1	1.7	1.7	6.1	71.8
11											20.3	51.1
												71.4
1	After 20 Days	27.7		1	1.8	21.3	12.8	1.1	0.9	0.1		66.8
2		0.7		0.1	0.7	2.2	28.3	19.7	3.2	4.4	0.4	59.7
3				31.8	2.1	0.7	5.2	13.2	10	23.2	0.5	86.6
4				0.2	1.8	28.8	11.2	0.9	1	0.1		44
5						0.8	13.6	0.2				14.6
6						0.1	3.6	0.3				4.1
7						0.4	9.5	0.9				10.8
9						1.7	1.5	14.7	18.8	9.1	28.6	5.8
10						0.3	0.2	1.7	5.5	2.1	5.3	51
11											19	31
												50.1
1	After 30 Days	20.9		0.4	0.8	11.6	5	0.4	0.4	0.1		39.7
2		0.5		0.1	0.2	1.2	16.2	8.5	1.1	1.9	0.3	29.9
3				17.9	1.8	1.1	10.5	18	8.2	20.9	0.6	79.1
4				0.7	11.5	3.4		0.3	0.4	0.1		16.4
5				0.5	8	0.1						6.6
6				0.9	0.1							1
7				0.2	2.4	0.2						2.8
9				1.4	1.4	15	18.7	6.9	13.5	3.9	0.5	61.3
10				0.2	0.4	3.7	6	1.8	4.2	38.9	10.1	65.3
11										16	21.2	37.2
1	After 60 Days	10.4		0.1	0.1	1.1	0.5					12.3
2		0.2		0.1	1.5	0.5	0.1	0.1	0.1			2.6
3				3.5	0.4	0.7	7.9	6.9	2.3	6.3	0.4	28.3
4				0.1	0.7	0.1						0.9
5				0.2	2.2							2.4
6				0.1								0.1
7				0.3								0.3
9				0.1	0.4	5.6	3.2	0.6	1.8	1.1	0.2	13.1
10				0.1	0.2	2.8	2.6	0.6	1.2	16	6.2	29.8
11										8.4	7.6	16

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Table 37
Mass Tracking Study for Low Delta Inflows and High Delta Exports
 (October WY 19990 - Hydrology from DWRDSM Study 472B)

Summary of Mass Fate

Alternative 3B

Point of Injection	Days After Injection	In Delta %	Islands %	Exports %	CCC %	Chipps %
Vernalis		95.05	4.95	0	0	0
Terminous		93.7	6.3	0	0	0
Freeport		54.35	5.51	39.86	0	0.28
Rio Vista	10	91.99	0.77	0	0	7.24
Jersey Point	Days	95.56	1.07	0.05	0.11	3.21
San Andreas Landing		92.89	7.06	0	0.01	0.04
Prisoners Point		56.55	43.45	0	0	0
Benicia		0	0	0	0	0
Vernalis		76.56	22.69	0.84	0.12	0
Terminous		71.87	28.12	0	0	0
Freeport		42.34	10.25	39.9	0.05	7.32
Rio Vista	20	68.35	1.75	0.3	0.25	29.34
Jersey Point	Days	79.24	2.98	1.92	1.18	14.69
San Andreas Landing		63.35	34.95	0.42	0.31	0.98
Prisoners Point		21.97	77.5	0.37	0.07	0.09
Benicia		0	0	0	0	0
Vernalis		40.22	44.84	14.28	0.65	0
Terminous		49.62	50.18	0.18	0.01	0
Freeport		31.41	14.39	40.32	0.26	13.27
Rio Vista	30	52.14	3.91	1.41	0.74	41.77
Jersey Point	Days	62.4	6.18	4.77	2.21	24.44
San Andreas Landing		42.14	52.27	2.02	0.81	2.76
Prisoners Point		10.54	86.82	2.18	0.2	0.26
Benicia		0	0	0	0	0
Vernalis		8.97	65.82	24.18	0.91	0.03
Terminous		16.37	80.57	2.84	0.15	0.07
Freeport		12.23	20.98	42.58	0.89	22.76
Rio Vista	60	20.83	10.99	5.08	1.94	61.11
Jersey Point	Days	25.39	15.54	10.77	4.08	44.21
San Andreas Landing		12.34	69.65	7.56	1.89	8.55
Prisoners Point		2.01	91.63	5.21	0.38	0.75
Benicia		0	0	0	0	0

Department of Water Resources, Delta Modeling Section

Table 38
Mass Tracking Study for Low Delta Inflows and High Delta Exports (Oct WY 1990)
Summary of Mass Fate By Region
(Values in %)

		Alternative 3B										Total
Region Mass Injected		Region Mass Reported										Total
1	2	3	4	5	6	7	8	9	10	11		
1	After 10 Days	49.4		13.4	0.6	1.2	22.4	5.7	4.2	0.3		97.2
2		5		2.5	13.1	0.8	1.7	34.1	9.9	27.8	1.3	96.4
3				49.7	0.2		0.2	1	18.3	1.2		70.5
4		1.3		0.1	10.3	2.3	5.7	46.6	12	18	1.6	97.7
5						1.6	76.4	0.4				78.5
6						0.1	2	17.3	14.1	0.6	0.1	34.3
7						0.3	5	37.2	34.1	1.7	0.3	78.7
9						1.9	0.2	0.4	5.9	7.7	62	16.8
10								0.1	0.2	0.5	31.2	5.6
11										20.1	56.7	76.8
1	After 20 Days	30.6		4.9	2	9.5	23.6	5.9	8.7	1.8		87.2
2		1.9		0.9	2.8	2.5	13	26	7.4	21.6	6.6	82.9
3				45.3	0.2		0.1	0.8	0.9	10.1	3.6	61.2
4		0.3			2.5	3.1	18.4	30.4	8.2	16.5	5.1	84.7
5						1.2	19.7	3.4				24.4
6						0.2	1	9.6	8.2	1.1	0.6	20.8
7						0.6	2.3	22.1	19.3	2.9	1.5	0.3
9						1.3	0.5	2.1	7.5	5	42.5	14.2
10						0.1		0.3	0.3	0.5	8.6	4.3
11										18.3	41.2	59.5
1	After 30 Days	22.6		2.6	1.7	11.3	18.5	5.1	8.7	2.8		73.1
2		1.2		0.6	1.6	1.7	12.9	18.4	5.8	14.8	6.9	64.1
3				42.4	0.2	0.1	0.3	1	0.7	6.7	3.1	54.6
4		0.2			1.6	2	15.7	21.2	6.5	12.6	5.5	65.4
5						0.9	9.7	2.7	0.2	0.1		13.6
6						0.2	0.6	5.5	5.3	1	0.8	0.2
7						0.6	1.5	12.9	12.7	2.6	2.2	0.6
9						0.9	0.5	2.9	7	3.6	29.6	10.6
10						0.1		0.1	0.4	0.2	0.3	4.4
11											14.6	32
1	After 60 Days	12.9		0.9	0.8	5.5	7.9	2.5	4.3	2.3	0.1	37.1
2		0.6		0.3	0.6	0.7	5.1	7.1	2.4	4.8	2.9	24.7
3				31.3	0.1	0.1	0.4	0.7	0.4	5.3	1.5	40
4		0.1			0.6	0.8	5.8	7.9	2.6	4.7	2.8	25.5
5						0.3	3.1	0.8	0.2	0.2	0.1	4.7
6						0.1	0.2	1.5	1.7	0.5	0.7	5
7						0.3	0.5	3.6	4	1.2	1.8	0.8
9						0.3	0.3	2.2	3.5	1.3	11.7	3.4
10						0.1		0.2	0.1	0.1	1.4	1.8
11											6.6	13.9

Department of Water Resources, Delta Modeling Section

Table 39
Mass Tracking Study for Low Delta Inflows and Low Delta Exports
(July 1991 - Hydrology from DWRDSM Study 472B)

Summary of Mass Fate

Alternative 3A

Point of Injection	Days After Injection	In Delta %	Islands %	Exports %	CCC %	Chipps %
Vernalis		45.59	54.42	0	0	0
Terminous		87.12	12.88	0	0	0
Freeport		73.11	11.52	15.36	0	0.01
Rio Vista	10	94.53	3.59	0	0	1.88
Jersey Point	Days	94.09	3.24	0.05	0.21	2.4
San Andreas Landing		96.3	3.58	0.01	0.05	0.06
Prisoners Point		96.73	3.24	0	0.01	0.01
Benicia		0	0	0	0	0
Vernalis		36.72	63.11	0.01	0	0
Terminous		73.18	26.74	0.03	0.04	0
Freeport		65.83	16.69	15.43	0.14	1.92
Rio Vista	20	77.14	6.28	0.17	0.26	16.15
Jersey Point	Days	76.19	6.09	1.25	1.22	15.25
San Andreas Landing		88.67	7.3	0.76	0.92	2.35
Prisoners Point		88.36	9.23	1.25	0.79	0.37
Benicia		0	0	0	0	0
Vernalis		29.85	69.5	0.42	0.01	0
Terminous		58.17	39.86	1.35	0.56	0.06
Freeport		56.19	20.16	16.01	0.61	7
Rio Vista	30	59.27	8.29	0.79	0.73	30.91
Jersey Point	Days	58.39	8.12	2.5	1.92	29.06
San Andreas Landing		75.37	11.32	2.99	2.19	8.13
Prisoners Point		69.19	18.71	7.94	2.77	1.38
Benicia		0	0	0	0	0
Vernalis		9.3	81.8	8.19	0.42	0.01
Terminous		21.9	60.56	12.5	3.22	1.82
Freeport		23.24	29.16	20.43	2.26	24.65
Rio Vista	60	22.01	12.15	2.47	1.69	61.59
Jersey Point	Days	21.68	11.43	4.34	2.93	59.63
San Andreas Landing		30.79	21.5	11.04	4.99	31.68
Prisoners Point		21.89	37.75	26	6.8	7.55
Benicia		0	0	0	0	0

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Table 40
Mass Tracking Study for Low Delta Inflows and Low Delta Exports (July 1991)
Summary of Mass Fate By Region
(Values in %)

Alternative 3B

Region Mass Injected		Region Mass Reported										Total
		1	2	3	4	5	6	7	8	9	10	
1	After 10 Days	56.7		14.8		0.2	10	2.8	1.2	0.1		85.7
2		9.8		5.1	14.2		0.1	8.6	9	38.7	0.8	86.4
3				7.3	2.3			1.4	11.1	62.1	1.6	85.9
4		10		1.5	22.2	0.1	2	31	10.4	15.4	0.6	93.1
5					91.5	5	3					99.5
6					0.2	0.3	18	13.6	0.2	0.1		32.4
7					0.7	0.7	37	35.4	0.9	0.3		75
9				0.2	4.3		0.5	10.5	10.6	49.1	14.6	89.9
10								0.1	0.2	0.4	19.9	1.1
11										1.6	20.6	22.2
1	After 20 Days	35.8		6	0.1	3.9	17.2	4.2	3.4	0.6		71.2
2		4.1		0.3	6.6	0.1	3.6	19.9	9.9	28.1	6.5	79.1
3		0.2		0.1	3.8		0.9	10.1	9.4	41.4	10.6	76.3
4		3.8		0.1	7.5	0.2	11	35.2	9.4	13.9	3.3	84.5
5					73.3	12.9	7	0.1				93.3
6					0.2	0.3	9.2	7.9	0.4	0.2		18.3
7					0.6	0.6	21.4	20.2	1.2	0.6	0.1	44.8
9				0.2		3	0.1	3.3	15.8	6.6	26.5	11.9
10						0.1		0.4	0.2	0.3	4	0.1
11										7.5	6.9	14.3
1	After 30 Days	21.9		2.8	0.1	6.4	15.7	3.4	3.1	0.9		54.4
2		2.6		0.2	3.8	0.1	7	21.2	7.1	17.7	10.1	0.1
3		0.2		2.9	0.1	3.1	14.2	6.6	24.7	15.8	0.2	67.8
4		2.3		3.8	0.3	13.7	29.9	6.7	9.5	4.4		70.7
5				0.1	61	15	7.7	0.2	0.1			84
6				0.2	0.3	5.3	5.1	0.4	0.2	0.1		11.5
7				0.5	0.6	12.8	13	1.1	0.7	0.2		28.9
9				0.1	2	0.1	5.3	15.3	4.4	17.2	6.9	0.2
10					0.1		0.1	0.5	0.1	0.1	1.9	
11										6.7	2.2	8.9
1	After 60 Days	4.3		0.6	0.2	4.4	7	1.2	1.1	0.5		19.2
2		0.7		0.1	1	0.2	6.7	11.9	2.4	4.2	4.3	0.1
3		0.1			1	0.2	5.2	10.2	2.3	5.7	6.4	0.2
4		0.6			1	0.4	8.1	12.8	2.2	2.6	1.8	
5					0.1	37.6	12.6	5.6	0.3	0.2		56.4
6					0.1	0.2	1.3	1.4	0.2	0.1		3.4
7					0.2	0.4	3.3	3.7	0.5	0.4	0.1	
9					0.6	0.2	4.4	7.4	1.4	5.1	2.7	0.1
10							0.1	0.2		0.2		0.6
11										0.7		0.7

Department of Water Resources, Delta Modeling Section

Delta Salinity

70

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Figure 23
Output Locations for End of Month Salinity

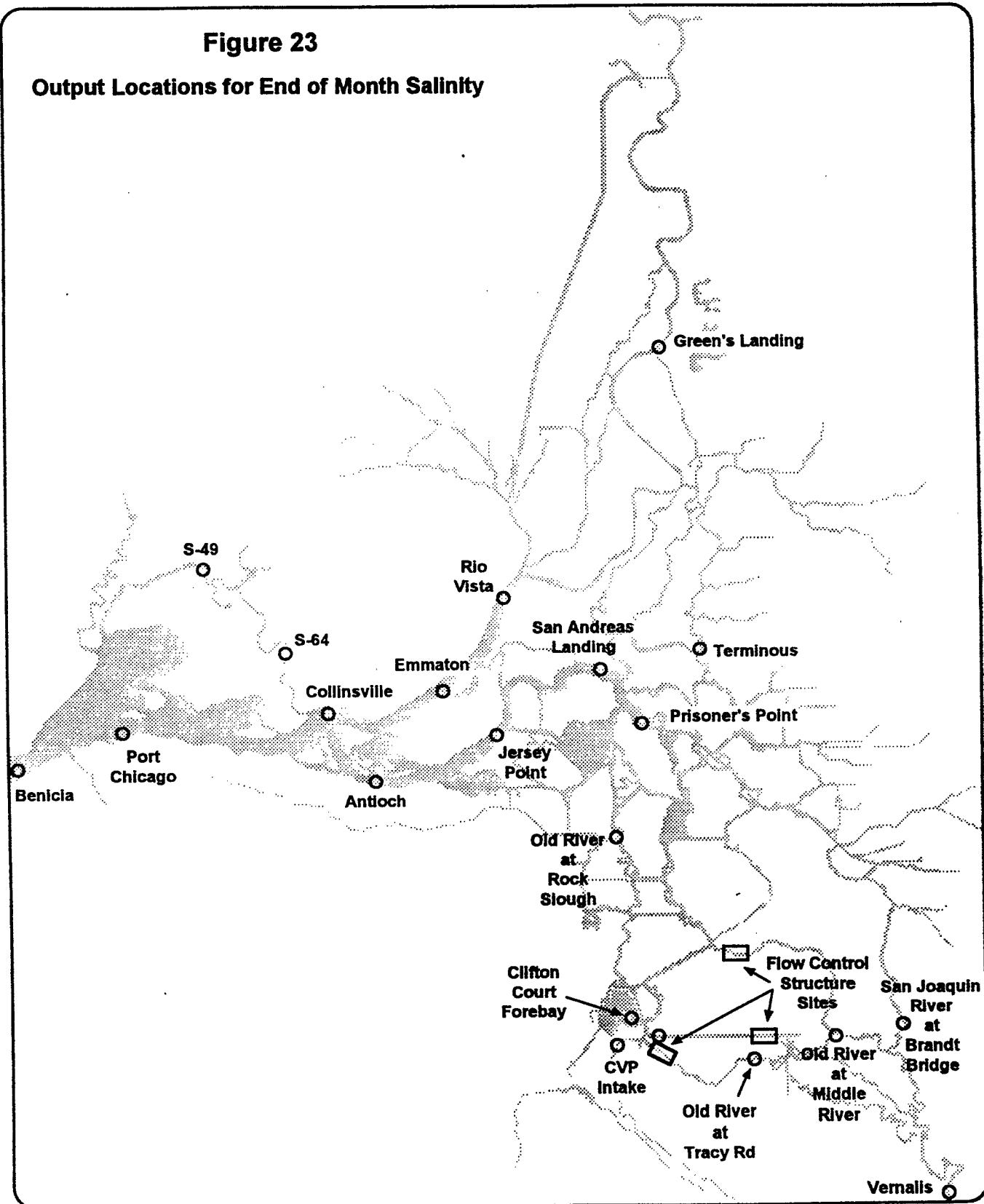


Table 41

**End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)**

Alternative 3A

Jersey Point												
Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	532	588	393	237	151	124	152	240	353	742	833	1342
1977	642	891	1124	863	245	254	228	245	281	393	765	1254
1978	738	843	1276	183	164	164	129	128	130	133	257	1246
1979	1533	1515	1596	500	194	134	143	161	151	262	346	1064
1980	1377	1417	656	149	134	127	129	145	133	130	234	1013
1981	1163	1260	1515	196	125	123	167	205	291	898	750	1278
1982	1586	425	112	184	122	155	96	114	111	119	250	298
1983	118	136	116	147	111	114	111	107	88	116	144	106
1984	126	120	122	121	134	115	137	151	155	331	292	1064
1985	1547	359	208	162	134	139	177	181	279	985	1313	1439
1986	1333	974	1294	481	152	114	123	142	144	132	200	964
1987	1346	1177	1647	772	174	149	172	278	381	756	660	1094
1988	1236	955	1690	529	200	180	192	247	281	411	772	1243
1989	807	1060	1425	1527	295	143	117	142	273	1048	1151	1645
1990	1885	1428	1511	852	254	155	159	246	343	505	784	1256
1991	811	1046	1276	922	256	138	141	217	307	440	800	1305
Avg	1049	887	998	489	178	146	148	184	231	463	597	1101
Emmaton												
Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	204	268	259	191	123	124	297	496	346	816	1904	1993
1977	1332	2040	2214	1500	182	468	448	438	343	1019	1826	2043
1978	1005	1649	905	135	113	111	106	109	128	203	687	889
1979	859	943	1033	192	130	109	117	169	129	272	973	1409
1980	1023	654	231	110	113	106	110	124	138	223	722	767
1981	715	1052	775	126	108	107	127	426	326	496	1389	1818
1982	1373	131	103	119	104	114	102	103	103	194	563	139
1983	104	109	104	115	108	106	102	101	99	106	179	102
1984	107	103	106	104	106	103	114	144	188	204	499	1111
1985	575	128	131	159	125	132	178	208	410	507	1064	1862
1986	1591	1459	581	186	110	104	109	129	164	231	597	801
1987	1147	1318	1108	385	124	112	170	624	272	506	1458	1877
1988	1786	1740	770	178	166	254	326	485	360	1015	1877	2099
1989	1160	2031	2327	1322	208	106	105	157	461	509	1195	1457
1990	1544	1529	1269	266	177	178	184	568	348	927	1881	2077
1991	1173	1959	2118	1489	185	115	130	471	473	1067	1858	2054
Avg	981	1070	877	411	136	147	170	297	268	518	1167	1406

Table 42
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

San Joaquin River at San Andreas Landing

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	239	221	157	126	112	108	138	161	140	161	174	342
1977	225	258	281	243	136	133	168	186	140	126	163	304
1978	202	237	386	162	143	156	127	129	133	105	112	337
1979	464	473	511	230	180	126	147	159	110	109	115	246
1980	381	520	360	144	130	125	137	144	122	107	110	254
1981	317	342	502	127	114	116	173	177	130	209	160	315
1982	437	242	111	163	118	147	96	109	107	104	106	146
1983	113	135	113	143	112	113	109	103	89	113	101	101
1984	123	116	123	119	128	108	141	150	109	119	110	256
1985	635	198	140	124	117	136	187	174	136	242	272	410
1986	352	256	487	267	149	114	125	142	141	104	107	236
1987	338	292	482	269	148	134	171	185	152	178	149	262
1988	289	233	595	329	145	131	177	181	140	125	163	298
1989	207	263	357	432	144	113	118	138	128	260	235	501
1990	553	388	434	397	145	125	157	208	145	132	163	305
1991	206	258	314	248	135	118	151	176	143	128	166	320
Avg	318	277	335	220	135	125	145	158	129	145	150	290

San Joaquin River at Prisoners Point

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	186	164	132	124	120	130	259	288	154	122	135	191
1977	327	320	279	266	231	200	329	329	200	148	146	193
1978	256	303	236	206	263	201	146	164	198	121	129	183
1979	266	280	303	207	231	200	233	234	116	105	119	147
1980	224	320	279	163	130	140	203	210	204	160	139	150
1981	201	211	300	207	155	205	286	285	152	146	126	168
1982	247	192	114	227	135	182	96	130	157	133	108	120
1983	138	226	117	135	98	103	115	113	84	144	102	143
1984	142	144	121	130	165	170	214	214	130	108	107	146
1985	413	166	131	134	147	229	324	306	176	162	170	210
1986	253	264	305	217	152	113	164	187	201	124	130	142
1987	209	205	266	203	262	284	348	322	145	132	127	175
1988	244	273	353	269	231	209	349	328	207	139	148	197
1989	251	290	265	263	245	112	228	277	168	171	153	253
1990	306	267	249	283	176	195	321	353	169	119	135	189
1991	249	287	260	255	219	131	298	317	213	136	141	194
Avg	244	244	232	206	185	175	245	254	167	136	132	175

Department of Water Resources, Delta Modeling Section

Table 43
End of Month Salinity

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

Old River at Rock Slough

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	309	286	228	173	143	142	308	256	244	245	332	513
1977	421	438	488	539	410	272	340	304	278	245	309	486
1978	452	447	562	249	310	191	136	178	182	150	166	414
1979	571	638	729	338	229	191	205	222	148	131	173	346
1980	525	676	491	151	126	137	177	197	196	185	183	334
1981	414	490	687	293	178	209	287	261	224	309	300	458
1982	630	335	121	424	132	164	92	145	147	153	141	186
1983	142	206	119	138	93	99	117	117	83	143	111	148
1984	140	137	113	126	170	174	195	204	164	151	148	330
1985	796	276	161	150	159	206	338	282	238	354	432	596
1986	589	517	654	365	150	108	171	180	213	159	163	306
1987	463	495	687	458	432	297	386	304	248	262	283	406
1988	524	517	798	463	355	270	393	305	282	238	311	487
1989	460	487	645	708	506	131	186	240	228	379	388	652
1990	774	675	681	576	276	242	366	322	267	213	303	486
1991	463	482	592	587	401	163	300	271	277	242	311	500
Avg	480	444	485	359	254	187	250	237	214	222	253	416

Terminous

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	99	99	99	153	151	138	129	143	110	109	112	113
1977	143	152	131	242	177	148	152	141	111	116	115	114
1978	117	124	115	290	205	210	151	118	111	110	112	106
1979	111	109	104	244	275	152	107	108	104	104	105	108
1980	102	98	108	183	177	127	105	102	99	105	103	99
1981	107	104	99	178	169	167	127	136	110	105	106	110
1982	105	131	148	217	126	168	95	95	99	105	101	94
1983	98	159	131	246	180	181	114	92	93	103	100	94
1984	104	105	165	132	116	100	104	117	104	104	103	107
1985	101	134	205	208	171	245	143	125	111	107	107	108
1986	111	113	120	282	218	145	113	100	103	106	103	97
1987	109	107	99	196	266	239	129	148	108	107	112	115
1988	116	116	164	307	251	171	139	136	110	115	116	120
1989	116	122	118	205	211	155	121	123	111	106	107	103
1990	104	103	103	169	265	182	128	143	107	111	115	118
1991	116	124	114	197	172	204	131	139	109	114	114	116
Avg	110	119	126	216	196	171	124	123	106	108	108	108

Department of Water Resources, Delta Modeling Section

Table 44
End of Month Salinity

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

Clifton Court Forebay

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	225	209	192	185	184	171	102	102	138	166	167	165
1977	159	157	165	188	313	272	102	102	101	441	218	167
1978	248	179	280	252	184	132	118	136	152	161	146	220
1979	302	317	321	256	142	154	137	124	156	140	140	185
1980	270	351	320	119	105	110	134	137	158	162	145	207
1981	245	247	314	213	196	193	118	102	138	196	169	179
1982	280	258	161	163	113	122	96	118	146	156	154	174
1983	124	157	105	109	94	98	104	107	90	130	136	156
1984	120	118	103	105	122	156	134	124	147	145	154	191
1985	421	232	177	183	195	185	101	101	121	214	238	192
1986	238	204	332	281	114	101	137	135	144	139	146	194
1987	251	226	293	270	172	213	101	102	161	178	145	159
1988	204	172	370	338	200	194	102	102	100	153	152	165
1989	202	159	198	300	262	176	124	101	106	224	213	244
1990	308	262	274	346	214	169	102	101	141	149	204	155
1991	169	171	196	236	464	206	101	102	100	203	153	166
Avg	235	214	238	222	192	166	113	112	131	185	168	182

Tracy Pumping Plant Intake

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	225	209	192	185	184	171	102	102	138	166	167	165
1977	159	157	165	188	313	272	102	102	101	441	218	167
1978	248	179	280	252	184	132	118	136	152	161	146	220
1979	302	317	321	256	142	154	137	124	156	140	140	185
1980	270	351	320	119	105	110	134	137	158	162	145	207
1981	245	247	314	213	196	193	118	102	138	196	169	179
1982	280	258	161	163	113	122	96	118	146	156	154	174
1983	124	157	105	109	94	98	104	107	90	130	136	156
1984	120	118	103	105	122	156	134	124	147	145	154	191
1985	421	232	177	183	195	185	101	101	121	214	238	192
1986	238	204	332	281	114	101	137	135	144	139	146	194
1987	251	226	293	270	172	213	101	102	161	178	145	159
1988	204	172	370	338	200	194	102	102	100	153	152	165
1989	202	159	198	300	262	176	124	101	106	224	213	244
1990	308	262	274	346	214	169	102	101	141	149	204	155
1991	169	171	196	236	464	206	101	102	100	203	153	166
Avg	235	214	238	222	192	166	113	112	131	185	168	182

Department of Water Resources, Delta Modeling Section

Table 45
End of Month Salinity

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

Sacramento River at Rio Vista

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	103	105	104	110	104	104	108	118	107	129	312	280
1977	187	305	335	233	109	116	115	116	108	161	281	294
1978	150	239	160	133	111	108	103	103	103	104	127	139
1979	136	143	148	143	126	106	105	110	102	105	158	184
1980	145	123	113	109	111	103	104	105	103	106	134	129
1981	126	148	130	116	106	105	105	123	107	113	202	240
1982	178	104	103	116	103	112	102	102	101	105	115	102
1983	101	107	103	113	108	106	102	101	101	102	103	101
1984	102	102	105	103	103	102	103	108	103	103	112	154
1985	117	107	108	115	111	119	110	109	109	114	148	258
1986	209	208	135	127	110	103	104	108	106	105	122	130
1987	152	168	151	124	112	106	107	130	106	115	220	272
1988	215	223	133	125	116	111	113	119	108	159	302	308
1989	152	278	330	188	112	105	102	105	111	116	161	193
1990	188	189	168	118	123	108	107	129	108	141	298	302
1991	153	258	293	218	109	114	105	119	113	160	287	297
Avg	151	175	164	137	111	108	106	113	106	121	193	211

Sacramento River at Greens Landing

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	100	100	100	102	101	101	102	102	100	100	101	101
1977	102	100	100	105	102	102	102	102	101	101	101	101
1978	102	100	110	106	101	101	100	101	100	101	101	101
1979	101	100	100	110	103	101	101	101	100	100	101	101
1980	100	100	102	102	102	101	101	101	101	101	101	101
1981	101	101	101	104	101	101	101	102	100	100	101	101
1982	101	102	101	104	101	101	100	100	100	101	101	100
1983	100	102	101	103	102	102	100	100	100	100	101	100
1984	101	101	101	101	101	100	101	101	100	100	101	101
1985	101	103	101	102	102	102	101	101	101	100	101	101
1986	101	102	103	103	103	101	101	101	101	101	101	101
1987	101	101	100	103	103	102	101	102	100	100	101	101
1988	101	101	102	104	103	101	102	102	100	101	101	101
1989	102	101	101	102	102	101	101	101	101	100	101	100
1990	100	100	100	103	102	101	102	101	100	101	101	101
1991	101	101	100	104	101	102	101	102	100	101	101	101
Avg	101	101	101	104	102	101	101	101	100	100	101	101

Department of Water Resources, Delta Modeling Section

Table 46
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

Benicia

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	12423	12987	12371	11492	9936	10028	12206	13794	14097	18491	18624	20017
1977	18250	18545	18180	16770	11169	13103	13510	13748	14007	16478	18599	20014
1978	18261	18541	16796	4988	4765	3624	5360	7615	10181	12239	15192	17593
1979	17659	16945	16472	8783	5288	6197	8225	10385	10904	13272	16111	18622
1980	18687	16730	12157	1141	152	4467	7616	9195	10593	12358	15179	17175
1981	16932	17017	15709	7472	7043	6489	8784	12475	13782	15582	17627	19420
1982	19685	7600	2662	2748	1379	2170	151	5413	7670	11495	14714	11260
1983	7626	5620	2561	1114	142	137	1575	3604	2719	7099	11401	7808
1984	7004	2879	144	3213	5418	5977	8253	10179	12010	12778	14730	17685
1985	16603	7508	9693	10629	9676	9336	10678	11464	13914	15730	17711	19454
1986	19783	18291	15448	10096	147	147	6562	9419	11051	12552	14802	17130
1987	18226	17617	16753	12935	7897	7047	10367	13742	13362	15341	17537	19387
1988	19687	18218	15570	9299	10081	11845	12569	13788	14066	16475	18614	20004
1989	18242	18581	18228	16741	11229	6357	7661	10517	13918	15785	17727	19082
1990	19469	18122	16932	11577	10375	11039	11275	13645	14085	16502	18622	20019
1991	18260	18538	18193	16746	11184	7340	9626	12970	14572	16770	18744	20069
Avg	16675	14609	12992	9109	6618	6581	8401	10747	11933	14184	16621	17796

Port Chicago

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	6801	7668	7225	6366	4832	4991	7160	8534	8272	10554	12517	13503
1977	12183	12753	12668	11393	5873	8132	8217	8362	8213	10562	12454	13528
1978	11681	12385	10840	1040	1013	507	1360	3000	5052	6767	9470	11369
1979	11552	11175	10949	3950	1361	1941	3553	5389	5476	7699	10320	12289
1980	12097	10469	6504	144	119	833	3043	4139	5286	6803	9449	10946
1981	10905	11320	10257	2828	2559	2151	4010	7526	8052	9644	11592	13012
1982	13027	2827	310	335	160	224	100	1368	2956	6255	9083	5454
1983	2749	1540	305	148	110	108	175	548	298	2541	6216	2868
1984	2361	355	110	457	1412	1755	3458	5019	6569	7155	8987	11573
1985	10448	2826	4861	5660	4668	4450	5675	6288	8340	9712	11597	13044
1986	13121	12061	9582	4780	119	107	2370	4377	5691	6960	9039	10927
1987	12157	11882	11250	7713	3168	2537	5510	8640	7648	9490	11530	12994
1988	13479	12476	10197	4334	5127	6830	7403	8425	8294	10612	12485	13533
1989	12118	12846	12792	11344	6024	1988	3084	5568	8446	9813	11643	12633
1990	13254	12348	11445	6254	5290	6000	6119	8435	8238	10574	12468	13552
1991	12129	12788	12719	11382	5889	2758	4782	7957	8801	10814	12565	13565
Avg	10629	9232	8251	4883	2983	2832	4126	5848	6602	8497	10713	11549

Department of Water Resources, Delta Modeling Section

Table 47
End of Month Salinity

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

San Joaquin River at Antioch

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	708	1006	836	528	242	211	477	894	932	2023	2679	3577
1977	2177	2965	3326	2566	462	910	778	803	816	1519	2597	3436
1978	2118	2610	2485	205	168	166	130	127	178	356	1089	2512
1979	2795	2857	2972	565	196	136	145	219	267	755	1421	2919
1980	2786	2157	697	151	137	128	124	153	192	310	995	2207
1981	2341	2831	2510	269	130	120	168	610	832	1656	2368	3361
1982	3370	294	115	191	123	156	96	114	113	264	1031	354
1983	120	131	117	151	113	117	112	108	89	117	385	109
1984	127	120	122	122	133	115	135	182	399	657	1052	2623
1985	2135	280	293	334	198	166	252	341	901	1719	2771	3504
1986	3280	2675	1919	451	155	115	119	153	209	353	842	2212
1987	3082	3028	3135	1310	193	149	262	1034	809	1576	2188	3129
1988	3531	2960	2579	413	303	502	535	833	823	1593	2611	3450
1989	2487	3310	3880	3273	560	144	119	251	963	1771	2743	3407
1990	3917	3426	3254	887	407	328	301	825	922	1795	2613	3464
1991	2484	3247	3596	2666	489	150	177	756	982	1659	2670	3527
Avg	2341	2119	1990	880	251	226	246	463	589	1133	1878	2737

Collinsville

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	746	1200	1115	774	326	357	1199	1921	1394	2867	4576	5145
1977	4005	5193	5449	4224	595	1805	1717	1712	1368	2977	4514	5148
1978	3201	4257	2989	143	121	120	112	127	330	795	2278	3101
1979	3279	3380	3525	330	146	116	173	493	388	1194	2847	4156
1980	3379	2372	675	115	112	110	129	208	367	802	2231	2812
1981	2853	3625	2829	174	117	110	225	1531	1334	2011	3808	4793
1982	4175	158	105	130	107	120	101	106	117	683	2017	344
1983	114	113	106	122	109	106	104	103	97	114	702	111
1984	115	105	106	107	113	105	151	333	725	858	1847	3519
1985	2288	155	351	555	300	267	556	756	1551	2038	3498	4853
1986	4466	4039	2066	355	110	104	116	241	475	861	1955	2887
1987	3955	4158	3714	1417	166	125	543	2173	1061	2016	3804	4823
1988	5231	4793	2795	305	455	1047	1263	1851	1400	3004	4571	5201
1989	3890	5297	5716	4095	686	111	128	533	1705	2070	3672	4256
1990	4843	4580	4076	767	501	659	669	1944	1401	2990	4560	5208
1991	3896	5159	5456	4204	614	127	325	1741	1732	3096	4601	5202
Avg	3152	3036	2567	1114	286	337	469	986	965	1774	3218	3847

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Table 48
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

Montezuma Slough at S-64

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	720	1141	1063	730	307	332	1085	1778	1965	2745	4305	5921
1977	3901	4996	5303	4111	593	1684	1596	1600	1878	2817	4409	6019
1978	6579	7600	7587	157	124	121	114	139	341	758	1706	3012
1979	3166	3317	3454	345	153	118	162	438	552	1037	2149	3699
1980	4969	5278	3258	119	115	111	143	250	455	886	1857	3053
1981	2768	3544	2762	190	118	111	203	1373	1621	2196	3574	5174
1982	6391	310	107	130	107	121	100	105	125	442	1227	1019
1983	146	112	107	123	109	108	104	103	96	111	401	143
1984	119	106	107	108	112	106	163	349	704	1109	1930	3272
1985	2211	164	325	509	277	247	497	685	1136	1913	3266	4959
1986	6377	7218	6556	2104	118	105	123	286	567	1026	1927	3106
1987	3828	4052	3631	1395	170	126	484	2007	1954	2462	3799	5346
1988	5081	4678	2743	312	425	954	1162	1701	1940	2813	4391	6015
1989	3784	5140	5583	4028	693	115	124	476	986	1855	3263	4830
1990	4753	4491	3972	764	479	594	617	1794	1971	2791	4360	5993
1991	3785	4992	5300	4105	612	130	293	1584	1906	2815	4424	6071
Avg	3661	3571	3241	1202	282	318	436	917	1137	1736	2937	4227

Montezuma Slough at S-49

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	798	1176	1127	785	340	353	1090	1800	2902	4731	6852	8684
1977	4150	5062	5415	4349	756	1695	1695	1683	2927	4894	6973	8767
1978	9598	10086	10225	500	254	177	179	317	808	1847	3613	5504
1979	3276	3418	3554	427	169	128	170	448	1016	2267	4209	6341
1980	7806	8374	7399	199	141	156	334	647	1183	2156	3792	5497
1981	2870	3602	2907	248	135	117	209	1338	2426	4063	6010	7884
1982	9223	3920	191	173	125	133	104	120	213	1018	2815	2780
1983	1003	178	119	127	110	108	106	105	97	133	791	599
1984	227	112	108	110	114	116	252	740	1643	2547	3860	5668
1985	2369	204	344	534	302	262	515	717	1966	3807	5785	7737
1986	9183	9961	9770	7555	154	135	349	713	1415	2381	3816	5466
1987	3893	4182	3774	1584	214	140	492	1962	2879	4306	6136	7959
1988	5223	4874	2943	396	469	981	1216	1745	2911	4874	6934	8755
1989	4023	5180	5681	4245	881	145	139	486	1851	3767	5830	7650
1990	4847	4646	4145	918	544	645	652	1783	2899	4843	6929	8748
1991	4034	5048	5423	4343	778	161	312	1548	2845	4931	7049	8836
Avg	4533	4376	3945	1656	343	341	488	1010	1874	3285	5087	6680

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Table 49
End of Month Salinity

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

San Joaquin River at Vernalis

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	277	445	438	480	440	475	395	378	414	414	416	507
1977	352	418	482	582	581	565	377	392	415	414	463	529
1978	544	540	531	317	205	156	131	158	209	351	414	364
1979	275	440	467	282	175	179	240	234	389	413	414	452
1980	350	460	446	128	98	129	207	210	227	301	414	372
1981	239	397	378	303	354	343	276	316	413	414	415	483
1982	420	491	437	166	122	128	90	127	166	326	414	293
1983	133	173	106	92	75	71	106	110	77	135	414	213
1984	134	132	100	119	163	216	218	212	377	412	413	430
1985	419	465	468	503	408	398	332	320	412	414	415	482
1986	419	490	496	448	102	91	167	186	200	412	414	433
1987	308	462	476	492	462	448	406	390	414	414	416	494
1988	430	552	582	583	581	550	391	393	415	414	416	515
1989	553	574	577	582	578	484	364	413	415	414	416	499
1990	545	564	581	582	580	529	403	409	415	415	447	515
1991	562	572	607	638	671	392	373	412	414	415	477	523
Avg	372	448	448	394	350	322	280	291	336	380	424	444

San Joaquin River at Brandt Bridge

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	277	446	438	482	440	484	399	384	422	425	426	510
1977	353	418	483	584	584	572	383	396	423	423	475	534
1978	546	542	534	320	208	157	131	159	212	357	422	367
1979	276	441	468	285	176	180	241	237	396	421	423	457
1980	351	461	447	129	97	130	208	212	230	305	423	376
1981	240	398	378	305	356	345	279	321	421	426	425	487
1982	420	492	439	167	122	129	91	128	169	331	422	294
1983	134	176	106	95	76	74	107	111	78	136	424	215
1984	135	132	100	119	162	217	220	215	384	421	421	434
1985	420	468	470	505	412	403	335	325	419	426	426	486
1986	420	492	498	451	104	92	167	188	203	419	422	437
1987	309	463	476	494	466	472	411	396	423	425	427	500
1988	432	553	583	594	585	556	395	398	423	423	426	521
1989	556	575	577	584	583	493	370	420	425	427	429	502
1990	546	565	581	586	584	537	409	411	425	425	458	521
1991	565	574	608	640	684	396	377	417	422	424	488	530
Avg	374	450	449	396	352	327	283	295	342	388	434	448

Department of Water Resources, Delta Modeling Section

Table 50
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

Old River at Middle River

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	256	268	438	481	440	480	423	431	421	422	424	510
1977	352	449	483	584	583	569	489	403	422	422	472	533
1978	412	513	533	320	208	158	131	159	212	356	421	367
1979	290	335	468	285	176	180	244	287	395	419	423	457
1980	301	320	446	129	97	130	206	254	230	305	422	375
1981	254	373	378	305	356	345	336	362	421	421	424	487
1982	335	313	438	167	122	130	91	128	168	330	421	294
1983	133	175	106	94	76	73	107	111	77	136	422	215
1984	135	132	100	120	162	217	244	275	383	418	420	433
1985	348	358	469	505	411	401	383	386	420	421	423	486
1986	366	457	497	450	104	92	167	229	203	419	422	436
1987	302	439	476	494	467	460	488	463	422	421	426	500
1988	369	473	583	585	585	553	473	432	422	422	426	520
1989	413	509	577	584	584	486	311	413	424	422	426	501
1990	369	436	581	583	583	534	472	412	424	424	455	520
1991	405	519	607	639	684	393	400	420	422	423	459	529
Avg	315	379	449	395	352	325	310	323	342	386	430	448

Old River at Tracy Road

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	386	542	439	491	449	500	490	493	437	439	431	495
1977	464	594	483	598	594	589	492	524	443	438	481	523
1978	515	682	540	359	229	185	133	168	221	370	437	377
1979	432	510	468	322	184	183	321	373	410	435	438	460
1980	408	444	449	139	110	133	294	351	241	318	438	387
1981	415	418	379	330	371	356	365	434	437	437	439	483
1982	450	827	441	190	125	152	91	135	175	344	436	297
1983	135	211	109	127	87	100	107	114	80	142	435	219
1984	137	137	108	122	165	222	318	364	399	433	435	439
1985	398	1100	475	516	428	418	422	473	436	437	438	482
1986	469	638	500	464	127	103	171	310	212	434	438	439
1987	444	595	477	510	492	523	508	533	439	437	441	498
1988	484	472	585	599	604	572	483	523	443	438	442	519
1989	516	687	580	597	599	499	458	432	444	437	440	478
1990	453	478	581	593	594	554	509	504	443	439	463	516
1991	507	782	607	647	691	408	459	484	441	440	544	523
Avg	413	570	451	413	366	344	351	388	356	401	448	446

Department of Water Resources, Delta Modeling Section

Table 51

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A**Old River Upstream of Flow Control Structure Site**

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	371	544	456	522	477	585	470	455	535	527	582	647
1977	449	520	500	620	626	674	468	502	554	552	637	657
1978	498	602	576	428	288	226	145	194	263	468	589	581
1979	404	712	480	359	219	197	297	342	493	512	578	614
1980	399	639	464	154	125	137	262	322	337	460	591	540
1981	384	531	391	355	372	378	341	400	529	524	570	619
1982	437	883	466	243	128	179	94	151	205	461	574	476
1983	138	237	116	154	99	120	113	123	87	159	518	235
1984	144	155	123	124	193	232	290	332	492	537	570	626
1985	389	1007	499	484	448	449	397	438	533	528	571	621
1986	459	472	522	486	161	117	180	284	239	492	519	496
1987	420	506	460	538	544	612	484	501	535	527	586	656
1988	466	367	603	626	631	636	463	499	552	553	599	659
1989	500	578	602	617	627	524	427	390	567	518	570	597
1990	440	392	543	609	556	622	484	492	561	552	631	655
1991	490	565	565	594	721	432	435	454	545	563	526	656
Avg	399	544	460	432	388	382	334	367	439	496	576	583

Middle River Upstream of Flow Control Structure Site

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	251	270	242	464	425	287	374	400	356	195	242	265
1977	351	386	428	613	567	472	459	402	458	351	296	301
1978	416	453	356	509	275	213	139	182	247	278	274	395
1979	279	342	322	427	213	213	239	253	246	174	235	247
1980	303	344	337	176	132	153	207	224	274	408	284	408
1981	237	302	280	410	434	420	311	342	324	169	227	248
1982	339	295	266	248	141	195	94	146	188	288	220	298
1983	137	220	111	150	93	104	110	120	87	150	163	224
1984	143	134	114	142	181	235	228	234	268	160	200	225
1985	370	291	206	507	474	454	383	363	369	177	213	264
1986	369	404	336	554	155	113	173	203	239	256	271	222
1987	287	339	274	527	626	622	466	441	336	176	245	266
1988	370	412	304	520	605	456	463	417	458	325	297	298
1989	414	450	450	585	633	424	323	400	399	182	214	245
1990	381	426	341	470	521	485	434	412	391	247	257	284
1991	408	457	442	585	528	482	380	413	452	320	288	300
Avg	316	345	301	430	375	333	299	310	318	241	245	281

Table 52
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3A

Grant Line Canal Upstream of Flow Control Structure Site

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	366	360	439	484	442	484	490	510	430	423	413	487
1977	449	433	484	589	587	572	496	509	436	431	472	511
1978	504	495	534	328	212	162	132	159	213	359	422	368
1979	410	412	468	290	178	181	314	386	398	422	422	452
1980	390	392	447	132	101	131	286	359	231	307	423	377
1981	391	376	379	309	360	348	362	443	426	425	424	477
1982	431	445	439	172	123	134	91	129	169	333	422	294
1983	134	176	106	102	78	79	107	111	78	137	423	215
1984	135	132	101	121	163	217	314	379	386	421	422	433
1985	389	457	470	508	416	404	419	483	425	424	425	477
1986	455	457	497	454	108	94	167	314	204	423	423	432
1987	429	399	477	500	475	474	509	544	429	423	420	483
1988	466	454	583	589	591	556	481	522	435	432	425	502
1989	507	489	578	589	589	488	439	447	439	424	423	478
1990	436	448	582	586	587	536	509	492	438	432	454	500
1991	497	479	608	643	687	395	457	490	433	436	494	510
Avg	399	400	450	400	356	328	348	392	348	391	432	437

Grant Line Canal at West End

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	372	285	440	489	444	494	470	471	464	445	437	494
1977	445	382	485	594	592	581	469	498	480	474	509	524
1978	494	447	536	330	213	164	132	160	218	370	439	371
1979	403	409	469	294	178	182	291	344	411	434	441	460
1980	397	412	447	133	102	132	256	316	237	315	442	381
1981	383	331	379	312	363	350	339	409	451	437	443	486
1982	436	418	439	173	124	136	91	129	173	342	435	295
1983	134	176	106	105	79	81	107	111	78	140	433	217
1984	135	132	101	122	163	218	284	333	401	430	434	439
1985	390	435	470	510	419	409	398	450	449	436	436	484
1986	455	423	498	456	110	95	168	279	209	440	439	437
1987	421	360	476	506	483	490	485	512	459	437	445	497
1988	463	409	584	592	598	563	462	501	480	477	455	517
1989	496	442	580	594	595	490	420	405	487	437	438	480
1990	439	473	579	590	588	545	484	490	500	480	497	515
1991	487	442	605	642	691	397	436	461	468	492	495	526
Avg	397	374	450	403	359	333	331	367	373	412	451	445

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Table 53

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

Jersey Point

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	562	611	416	258	165	130	158	242	352	767	839	1366
1977	643	907	1132	868	246	255	225	242	281	391	763	1260
1978	739	856	1346	196	160	161	126	130	136	135	257	1293
1979	1611	1599	1750	571	186	132	144	161	158	271	351	1101
1980	1222	1448	690	145	132	127	130	143	137	131	235	1068
1981	1225	1317	1611	253	141	130	169	206	292	921	769	1300
1982	1666	459	115	183	120	149	95	115	111	118	257	318
1983	117	136	115	145	110	114	110	106	88	118	148	107
1984	122	119	121	121	134	121	137	150	158	336	306	1103
1985	1616	389	220	170	141	148	186	184	284	1002	1375	1462
1986	1400	1031	1387	521	149	113	128	140	149	133	202	1001
1987	1420	1234	1747	869	202	159	181	280	380	777	669	1089
1988	1258	970	1813	567	219	187	196	256	284	411	775	1254
1989	803	1062	1448	1554	322	119	131	148	282	1048	1200	1697
1990	1964	1492	1569	896	297	169	163	249	347	507	789	1272
1991	814	1048	1272	939	257	146	144	219	308	444	803	1303
Avg	1074	917	1047	516	186	148	151	186	234	469	609	1125

Emmaton

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	214	281	269	199	126	126	302	506	343	835	1906	2031
1977	1356	2050	2222	1527	182	469	449	439	343	1025	1833	2046
1978	1003	1655	936	136	112	111	105	110	129	206	690	913
1979	905	996	1115	204	130	108	118	168	131	272	977	1434
1980	982	696	240	110	113	105	110	124	137	227	707	789
1981	739	1090	815	134	110	107	128	433	334	492	1429	1796
1982	1399	136	103	119	103	113	102	103	103	195	561	144
1983	104	109	104	115	108	106	102	101	99	106	180	102
1984	106	103	106	104	106	103	113	143	189	205	493	1102
1985	584	132	132	162	127	134	180	210	413	524	1079	1860
1986	1620	1497	630	194	110	104	109	129	166	233	589	821
1987	1159	1358	1144	412	130	114	172	641	275	506	1463	1878
1988	1798	1710	801	185	171	255	327	499	362	1018	1892	2104
1989	1161	2031	2335	1337	217	105	108	155	460	508	1198	1472
1990	1563	1562	1292	280	189	182	187	572	351	933	1888	2089
1991	1176	1922	2142	1496	184	116	131	474	474	1074	1863	2057
Avg	992	1083	899	420	139	147	171	300	269	522	1172	1415

Table 54
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

San Joaquin River at San Andreas Landing

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	272	245	174	135	115	108	140	162	142	175	175	350
1977	226	257	285	243	136	133	168	186	140	126	163	306
1978	204	238	449	164	136	154	126	124	124	105	112	383
1979	547	567	651	274	179	120	143	158	112	111	116	272
1980	322	575	405	142	129	124	132	141	113	105	109	293
1981	385	409	601	126	114	112	171	177	131	229	171	338
1982	511	274	112	161	117	144	96	109	102	103	108	162
1983	109	127	113	141	112	113	108	103	89	111	102	99
1984	119	115	123	119	127	105	136	148	109	123	114	285
1985	708	222	148	127	117	132	190	175	137	263	319	438
1986	393	275	576	303	148	113	120	139	135	104	107	268
1987	415	342	584	334	151	131	170	185	156	194	153	264
1988	301	235	695	371	148	132	179	185	141	126	163	298
1989	206	265	364	488	147	116	125	140	130	282	275	563
1990	639	445	493	453	154	126	157	208	146	135	164	307
1991	207	258	316	251	134	121	149	175	143	128	167	321
Avg	348	303	381	240	135	124	144	157	128	151	157	309

San Joaquin River at Prisoners Point

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	200	179	138	124	116	124	264	291	147	127	138	194
1977	328	317	278	264	229	199	330	330	200	147	145	192
1978	254	302	270	182	252	194	144	160	180	115	126	215
1979	320	342	393	214	236	191	229	233	111	106	119	154
1980	176	360	308	159	127	139	199	209	177	144	134	170
1981	229	244	368	182	131	173	286	286	143	155	128	179
1982	282	211	112	237	133	175	95	130	134	124	106	127
1983	135	216	115	131	97	102	113	112	83	144	101	118
1984	138	145	120	129	164	150	211	213	121	110	107	162
1985	470	177	135	129	131	208	332	309	170	173	189	229
1986	253	253	370	235	148	111	159	187	195	121	127	158
1987	237	216	333	228	280	263	348	324	138	139	129	177
1988	228	270	429	291	240	214	354	332	209	139	148	196
1989	250	291	258	284	255	224	259	284	166	183	168	302
1990	360	283	281	317	169	197	324	354	160	117	135	189
1991	247	286	258	253	216	122	294	317	212	135	140	192
Avg	257	256	260	210	183	174	246	254	159	136	134	185

Department of Water Resources, Delta Modeling Section

Table 55
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

Old River at Rock Slough

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	414	365	350	326	352	236	351	263	251	306	347	535
1977	428	440	491	543	416	273	341	303	277	245	309	483
1978	452	445	646	339	255	188	134	168	235	165	168	432
1979	822	952	990	603	193	189	246	228	184	147	183	371
1980	494	932	704	145	122	137	212	203	256	219	180	386
1981	584	698	952	361	370	368	297	263	233	394	384	519
1982	869	505	127	237	129	157	92	136	183	164	151	235
1983	135	201	116	135	90	99	114	116	82	154	118	216
1984	138	138	111	126	169	224	228	210	193	172	191	352
1985	1108	394	190	244	392	421	355	291	243	454	623	708
1986	734	597	923	547	139	106	172	184	225	164	166	321
1987	664	679	841	790	585	526	436	312	271	336	312	411
1988	581	523	1082	684	454	304	402	309	285	239	310	485
1989	460	487	631	820	620	140	320	262	234	486	571	818
1990	1061	905	879	881	525	312	386	329	272	235	306	486
1991	464	481	592	590	405	233	327	277	278	242	311	498
Avg	588	546	602	461	326	245	276	241	231	258	289	454

Terminous

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	99	99	99	152	150	137	129	143	110	109	112	113
1977	144	153	131	242	177	147	152	143	111	116	115	114
1978	117	125	115	291	204	211	150	117	110	110	112	106
1979	111	108	104	242	276	152	107	108	104	104	105	108
1980	103	98	108	184	178	127	104	102	99	105	103	99
1981	107	104	99	177	168	167	127	135	110	105	106	110
1982	105	130	147	217	126	169	96	95	99	105	102	94
1983	98	159	132	246	181	183	114	92	93	104	100	94
1984	103	105	166	132	116	100	104	117	104	104	103	107
1985	101	133	202	207	170	247	143	125	111	107	107	108
1986	112	113	120	278	220	146	112	100	103	106	103	97
1987	108	107	99	195	266	239	129	148	108	107	112	116
1988	116	117	163	302	250	170	139	135	110	115	116	120
1989	117	123	118	204	211	154	121	123	111	106	107	103
1990	104	103	103	168	264	182	129	142	107	111	115	118
1991	116	126	115	196	172	202	131	139	109	114	114	116
Avg	110	119	126	215	196	171	124	123	106	108	108	108

Department of Water Resources, Delta Modeling Section

Table 56
End of Month Salinity

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

Clifton Court Forebay

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	228	204	175	175	178	169	102	102	121	144	186	157
1977	160	157	166	188	313	272	102	102	101	446	218	166
1978	246	179	237	257	184	141	121	137	151	147	145	193
1979	269	284	298	263	154	154	139	123	126	131	140	161
1980	187	304	325	133	114	112	142	138	154	153	144	182
1981	227	219	294	205	182	191	119	102	121	177	150	162
1982	230	273	164	176	120	138	97	120	146	148	143	171
1983	125	162	109	119	99	103	107	108	92	129	127	155
1984	121	119	109	106	123	152	134	123	123	138	142	169
1985	395	249	181	176	193	182	101	101	113	194	207	176
1986	213	199	312	288	136	108	137	135	144	133	145	170
1987	215	205	259	245	174	206	101	102	127	163	145	163
1988	186	175	335	348	216	198	102	102	100	154	153	164
1989	201	159	186	244	271	230	129	101	105	201	175	207
1990	266	245	233	334	208	179	102	101	124	142	217	156
1991	169	171	196	236	460	205	101	102	100	214	153	166
Avg	215	207	224	218	195	171	115	112	122	176	162	170

Tracy Pumping Plant Intake

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	228	204	175	175	178	169	102	102	121	144	186	157
1977	160	157	166	188	313	272	102	102	101	446	218	166
1978	246	179	237	257	184	141	121	137	151	147	145	193
1979	269	284	298	263	154	154	139	123	126	131	140	161
1980	187	304	325	133	114	112	142	138	154	153	144	182
1981	227	219	294	205	182	191	119	102	121	177	150	162
1982	230	273	164	176	120	138	97	120	146	148	143	171
1983	125	162	109	119	99	103	107	108	92	129	127	155
1984	121	119	109	106	123	152	134	123	123	138	142	169
1985	395	249	181	176	193	182	101	101	113	194	207	176
1986	213	199	312	288	136	108	137	135	144	133	145	170
1987	215	205	259	245	174	206	101	102	127	163	145	163
1988	186	175	335	348	216	198	102	102	100	154	153	164
1989	201	159	186	244	271	230	129	101	105	201	175	207
1990	266	245	233	334	208	179	102	101	124	142	217	156
1991	169	171	196	236	460	205	101	102	100	214	153	166
Avg	215	207	224	218	195	171	115	112	122	176	162	170

Department of Water Resources, Delta Modeling Section

Table 57
End of Month Salinity

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

Sacramento River at Rio Vista

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	103	105	105	110	104	104	109	118	108	130	315	283
1977	188	305	339	238	108	116	115	116	108	161	284	292
1978	153	242	161	133	111	108	103	103	103	104	127	141
1979	137	145	156	143	126	106	105	109	102	105	158	190
1980	141	126	113	109	111	103	104	105	103	106	133	132
1981	128	153	134	116	106	105	105	123	107	114	207	242
1982	187	104	103	116	103	112	102	102	101	105	116	102
1983	101	107	103	113	108	106	102	101	101	102	103	101
1984	102	102	105	103	103	102	103	107	103	103	113	155
1985	116	107	108	115	111	119	109	108	110	114	151	269
1986	216	212	139	127	110	103	104	107	106	105	122	133
1987	153	173	157	126	112	106	107	130	106	115	222	273
1988	216	225	136	125	116	111	113	120	109	159	304	307
1989	156	283	329	190	113	105	102	106	112	115	164	197
1990	196	195	175	118	123	108	107	129	108	143	298	304
1991	153	259	295	219	109	114	106	119	113	159	287	292
Avg	153	178	166	138	111	108	106	113	106	121	194	213

Sacramento River at Greens Landing

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	100	100	100	102	101	101	102	102	100	100	101	101
1977	102	100	100	105	102	102	102	102	101	101	101	101
1978	102	100	110	106	101	101	100	101	100	101	101	101
1979	101	100	100	110	103	101	101	101	100	100	101	101
1980	100	100	102	102	102	101	101	101	101	101	101	101
1981	101	101	101	104	101	101	101	102	100	100	101	101
1982	101	102	101	104	101	101	100	100	100	101	101	100
1983	100	102	101	103	102	102	100	100	100	100	101	100
1984	101	101	101	101	101	100	101	101	100	100	101	101
1985	101	103	101	102	102	102	101	101	101	100	101	101
1986	101	102	103	103	103	101	101	101	101	101	101	101
1987	101	101	100	103	103	102	101	102	100	100	101	101
1988	101	101	102	104	103	101	102	102	100	101	101	101
1989	102	101	101	102	102	101	101	101	101	100	101	100
1990	100	100	100	103	102	101	102	101	100	101	102	101
1991	101	101	100	104	101	102	101	102	100	101	101	101
Avg	101	101	101	104	102	101	101	101	100	100	101	101

Department of Water Resources, Delta Modeling Section

Table 58
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

Benicia

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	12431	12999	12368	11490	9925	10028	12203	13808	14080	16501	18621	20012
1977	18253	18549	18205	16770	11169	13109	13499	13750	14006	16477	18614	20014
1978	18253	18541	16801	4994	4751	3638	5360	7612	10180	12227	15182	17606
1979	17661	16940	16478	8810	5286	6202	8233	10399	10912	13273	16107	18627
1980	18690	16739	12161	1142	152	4486	7627	9191	10601	12332	15184	17185
1981	16913	17031	15710	7475	7058	6489	8800	12455	13768	15585	17625	19440
1982	19692	7600	2677	2746	1380	2167	151	5411	7670	11491	14699	11280
1983	7640	5607	2549	1120	143	137	1568	3597	2689	7099	11390	7814
1984	7011	2861	144	3214	5426	5986	8250	10168	12011	12789	14726	17702
1985	16590	7532	9688	10634	9666	9329	10690	11456	13920	15735	17720	19465
1986	19747	18287	15502	10123	147	147	6568	9415	11032	12521	14790	17142
1987	18248	17632	16745	12949	7901	7049	10358	13743	13371	15356	17534	19390
1988	19710	18213	15565	9306	10088	11846	12566	13777	14067	16465	18625	20011
1989	18253	18581	18232	16751	11221	6279	7674	10507	13925	15796	17738	19088
1990	19479	18136	16938	11590	10388	11048	11273	13646	14069	16509	18616	20004
1991	18247	18574	18207	16755	11186	7342	9633	12962	14572	16778	18747	20063
Avg	16676	14614	12998	9117	6618	6580	8403	10744	11930	14183	16620	17803

Port Chicago

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	6835	7662	7189	6310	4846	5025	7121	8575	8324	10570	12468	13560
1977	12199	12761	12680	11398	5877	8124	8247	8338	8233	10572	12477	13507
1978	11711	12320	10894	1121	928	580	1362	2969	5045	6767	9490	11378
1979	11562	11199	10999	3982	1348	1969	3568	5377	5504	7720	10315	12314
1980	12166	10477	6535	142	118	835	3050	4173	5309	6837	9474	10944
1981	10940	11299	10243	2853	2560	2193	4047	7531	8105	9680	11608	13031
1982	13008	2812	295	388	155	241	100	1420	2955	6256	9072	5534
1983	2783	1567	298	149	110	108	147	556	286	2516	6252	2868
1984	2391	391	109	439	1434	1812	3461	5010	6564	7160	9007	11558
1985	10481	2804	4861	5654	4679	4482	5738	6292	8354	9729	11595	13038
1986	13172	12101	9594	4835	118	106	2375	4369	5625	6924	9001	10882
1987	12207	11896	11221	7708	3180	2551	5485	8658	7627	9458	11526	13042
1988	13481	12496	10212	4259	5149	6835	7412	8529	8291	10593	12488	13538
1989	12124	12843	12799	11339	6011	1668	3071	5539	8455	9815	11665	12633
1990	13266	12327	11461	6320	5352	6016	6112	8440	8299	10575	12495	13557
1991	12139	12792	12692	11392	5908	2738	4818	7945	8810	10821	12592	13561
Avg	10654	9234	8255	4893	2986	2830	4132	5858	6612	8500	10720	11559

Department of Water Resources, Delta Modeling Section

Table 59
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

San Joaquin River at Antioch

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	727	1026	847	546	254	218	481	909	949	2025	2657	3589
1977	2193	2981	3342	2569	462	921	774	797	818	1518	2599	3446
1978	2124	2591	2535	225	166	163	125	130	180	365	1110	2544
1979	2831	2896	3097	602	188	133	147	218	277	769	1414	2950
1980	2726	2160	713	146	135	127	129	151	195	314	1008	2250
1981	2392	2871	2559	335	148	129	173	615	839	1673	2355	3387
1982	3395	305	120	190	120	151	96	116	114	267	1058	368
1983	122	134	116	148	112	116	111	107	88	119	394	110
1984	123	120	121	121	133	121	138	180	401	659	1057	2635
1985	2171	292	299	342	206	175	265	346	914	1733	2797	3499
1986	3292	2710	1969	468	151	113	126	151	213	361	841	2246
1987	3126	3055	3199	1372	231	161	272	1037	815	1585	2187	3127
1988	3544	2971	2632	429	328	509	539	881	828	1586	2615	3457
1989	2490	3290	3886	3289	595	122	129	256	974	1776	2764	3412
1990	3948	3472	3263	900	446	350	305	829	925	1780	2628	3501
1991	2499	3238	3600	2690	493	153	180	767	991	1683	2681	3528
Avg	2356	2132	2019	898	260	229	249	468	595	1138	1885	2753

Collinsville

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	755	1218	1134	794	332	369	1194	1929	1414	2869	4622	5167
1977	4041	5212	5456	4221	598	1811	1724	1714	1373	2986	4530	5150
1978	3203	4271	3033	147	121	119	111	127	326	794	2280	3136
1979	3324	3445	3634	347	145	115	174	491	395	1197	2872	4156
1980	3418	2387	693	115	112	110	131	207	369	810	2251	2838
1981	2899	3675	2872	195	122	112	226	1534	1347	2033	3819	4789
1982	4193	164	105	130	106	119	100	106	118	693	2022	352
1983	115	114	106	122	109	106	103	103	96	115	705	110
1984	113	106	106	107	113	107	153	335	787	852	1873	3537
1985	2314	161	356	561	303	278	561	767	1578	2046	3525	4835
1986	4508	4052	2108	373	110	104	118	241	477	868	1947	2926
1987	3986	4213	3772	1458	181	128	546	2181	1072	2016	3811	4815
1988	5266	4803	2832	319	472	1053	1269	1873	1404	3010	4582	5195
1989	3890	5302	5729	4108	706	108	132	540	1723	2076	3665	4263
1990	4887	4615	4085	781	516	682	676	1951	1406	3007	4602	5221
1991	3904	5170	5466	4213	613	129	326	1737	1738	3108	4605	5210
Avg	3176	3057	2593	1124	291	341	472	990	973	1780	3232	3856

Department of Water Resources, Delta Modeling Section

Table 60
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

Montezuma Slough at S-64

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	735	1161	1077	745	313	333	1084	1783	1973	2767	4317	5936
1977	3898	5012	5309	4116	596	1684	1618	1590	1883	2816	4399	6021
1978	6606	7604	7607	161	123	120	112	139	333	763	1714	3056
1979	3218	3344	3543	365	151	117	163	436	556	1051	2182	3769
1980	5116	5397	3373	118	115	111	144	250	450	899	1875	3098
1981	2811	3576	2810	215	124	113	205	1374	1623	2208	3603	5218
1982	6452	325	107	130	107	120	100	106	126	457	1239	1044
1983	151	113	107	123	109	108	104	103	96	112	404	146
1984	117	106	107	108	113	107	165	351	699	1118	1969	3316
1985	2247	170	331	519	283	250	504	694	1154	1916	3298	5001
1986	6420	7242	6684	2169	117	105	125	289	571	1044	1946	3153
1987	3860	4095	3694	1442	188	130	491	2019	1962	2485	3829	5362
1988	5118	4685	2803	322	442	964	1165	1748	1967	2837	4402	6024
1989	3776	5141	5579	4041	717	112	127	482	997	1864	3318	4895
1990	4772	4496	4021	781	502	630	616	1796	1984	2824	4384	6004
1991	3784	5004	5337	4122	614	131	293	1587	1919	2821	4422	6060
Avg	3693	3592	3281	1217	288	321	438	922	1143	1749	2956	4256

Montezuma Slough at S-49

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	817	1197	1140	802	348	358	1092	1808	2911	4762	6854	8678
1977	4160	5070	5430	4357	758	1702	1698	1682	2922	4898	6963	8769
1978	9594	10080	10249	504	256	176	177	322	842	1873	3610	5547
1979	3322	3457	3650	448	169	127	170	449	1040	2325	4259	6372
1980	7910	8477	7526	201	142	156	335	663	1201	2165	3806	5556
1981	2919	3633	2952	275	142	121	213	1340	2450	4116	6073	7917
1982	9292	4045	192	174	125	133	104	121	216	1018	2844	2860
1983	1047	180	119	127	110	108	105	105	97	132	. 820	605
1984	231	112	108	110	114	116	255	756	1685	2581	3891	5710
1985	2399	210	350	542	307	268	520	725	1967	3834	5854	7766
1986	9224	9992	9813	7663	154	135	359	735	1446	2396	3842	5512
1987	3925	4220	3828	1625	236	145	496	1969	2910	4369	6150	7966
1988	5234	4885	2993	408	485	991	1221	1786	2950	4896	6938	8745
1989	4022	5180	5697	4256	904	141	142	494	1882	3837	5906	7692
1990	4872	4683	4167	934	568	669	658	1791	2949	4854	6932	8753
1991	4042	5059	5444	4355	781	163	315	1550	2850	4917	7041	8855
Avg	4563	4405	3979	1674	350	344	491	1018	1895	3311	5111	6706

Department of Water Resources, Delta Modeling Section

Table 61
End of Month Salinity

(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

San Joaquin River at Vernalis

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	277	445	438	480	440	475	395	378	414	414	416	507
1977	352	418	482	582	581	565	377	392	415	414	463	529
1978	544	540	531	317	205	156	131	158	209	351	414	364
1979	275	440	467	282	175	179	240	234	389	413	414	452
1980	350	460	446	128	98	129	207	210	227	301	414	372
1981	239	397	378	303	354	343	276	316	413	414	415	483
1982	420	491	437	166	122	128	90	127	166	326	414	293
1983	133	173	106	92	75	71	106	110	77	135	414	213
1984	134	132	100	119	163	216	218	212	377	412	413	430
1985	419	465	468	503	408	398	332	320	412	414	415	482
1986	419	490	496	448	102	91	167	186	200	412	414	433
1987	308	462	476	492	462	448	406	390	414	414	416	494
1988	430	552	582	583	581	550	391	393	415	414	416	515
1989	553	574	577	582	578	484	364	413	415	414	416	499
1990	545	564	581	582	580	529	403	409	415	415	447	515
1991	562	572	607	638	671	392	373	412	414	415	477	523
Avg	372	448	448	394	350	322	280	291	336	380	424	444

San Joaquin River at Brandt Bridge

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	277	446	438	482	440	484	399	384	421	424	426	510
1977	353	418	483	584	584	572	383	396	423	423	475	534
1978	546	542	533	320	208	157	131	159	212	357	421	367
1979	276	441	468	284	176	180	241	237	396	419	423	457
1980	351	461	447	129	97	130	208	212	230	305	423	376
1981	240	398	378	304	356	345	279	321	421	423	425	487
1982	420	492	439	167	122	129	91	128	169	331	422	294
1983	134	176	106	95	76	74	107	111	78	136	422	215
1984	135	132	100	119	162	217	220	215	384	419	421	434
1985	420	468	470	504	411	402	335	325	419	423	424	486
1986	420	492	497	450	104	92	167	188	203	419	422	436
1987	309	463	476	493	466	472	411	396	422	423	427	500
1988	432	553	583	586	585	556	395	398	423	423	426	521
1989	556	575	577	583	583	488	370	420	425	424	427	501
1990	546	565	581	583	584	537	409	411	425	425	459	521
1991	565	574	608	640	684	395	377	417	422	425	488	530
Avg	374	450	449	395	352	327	283	295	342	387	433	448

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Table 62
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

Old River at Middle River

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	279	425	438	481	440	481	475	434	421	423	424	510
1977	353	457	483	584	583	569	494	402	422	422	473	533
1978	411	513	533	320	208	158	131	159	212	356	421	367
1979	304	455	468	285	176	180	265	295	395	420	423	457
1980	333	428	446	129	97	130	228	265	230	305	423	375
1981	264	437	378	305	356	345	315	363	421	422	425	487
1982	397	519	438	167	122	130	91	128	168	330	421	294
1983	133	175	106	94	76	73	107	111	77	136	423	215
1984	135	132	100	120	162	217	262	284	383	419	421	434
1985	392	562	469	505	411	401	386	390	420	422	424	486
1986	396	491	497	450	104	92	167	241	203	419	422	436
1987	337	498	476	494	467	460	536	467	422	422	426	500
1988	389	484	583	585	586	553	471	434	422	423	426	520
1989	412	510	577	584	584	486	448	432	424	423	426	501
1990	468	510	581	583	583	534	486	414	424	423	457	520
1991	405	520	607	639	684	393	425	427	422	423	463	529
Avg	338	445	449	395	352	325	330	328	342	387	431	448

Old River at Tracy Road

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	435	619	439	492	449	500	493	508	440	439	433	498
1977	475	584	483	598	594	589	490	524	443	438	482	524
1978	520	660	543	361	230	186	133	167	221	371	438	377
1979	472	646	468	322	184	183	312	393	410	435	438	463
1980	445	597	449	139	110	133	283	369	241	318	438	387
1981	449	549	379	331	371	356	363	433	438	438	442	487
1982	487	992	442	192	125	152	91	134	175	345	438	297
1983	135	213	110	127	87	100	107	114	80	142	436	220
1984	137	138	108	122	165	222	308	387	399	434	436	444
1985	465	1116	476	517	428	418	419	477	436	438	442	486
1986	503	667	501	465	127	103	171	316	212	434	438	441
1987	497	727	477	512	493	523	508	549	442	437	441	498
1988	492	503	586	607	604	571	481	525	443	439	442	520
1989	522	664	580	599	599	500	470	494	446	437	444	490
1990	516	505	581	597	595	554	509	509	446	440	464	518
1991	513	753	607	648	691	408	459	493	441	441	551	524
Avg	441	621	452	414	366	344	350	400	357	402	450	448

Department of Water Resources, Delta Modeling Section

Table 63
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

Old River Upstream of Flow Control Structure Site

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	423	488	456	518	483	586	473	475	549	552	585	621
1977	460	571	500	619	625	667	466	502	568	549	627	652
1978	503	644	580	424	283	222	145	190	259	467	568	566
1979	454	641	485	364	212	205	294	358	500	528	582	618
1980	433	569	471	156	124	137	263	334	321	441	571	572
1981	430	516	399	357	370	381	339	400	537	546	587	625
1982	476	788	476	238	128	180	94	152	209	456	575	474
1983	138	247	116	153	99	120	113	123	87	158	526	236
1984	144	172	123	123	170	233	284	351	490	535	578	614
1985	455	919	509	501	454	449	395	446	529	544	593	622
1986	492	517	526	490	160	116	180	285	239	495	517	499
1987	478	550	458	540	544	614	485	521	547	544	593	632
1988	478	381	611	641	630	624	461	503	566	547	591	653
1989	504	625	601	620	626	536	442	459	578	551	600	608
1990	506	498	546	620	568	616	484	498	587	569	613	649
1991	496	578	571	608	715	439	436	466	559	569	543	663
Avg	429	544	464	436	387	383	335	379	445	503	578	582

Middle River Upstream of Flow Control Structure Site

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	270	343	393	559	515	496	445	402	439	330	250	287
1977	352	388	424	614	566	462	466	401	454	349	295	298
1978	414	452	493	456	268	211	139	181	247	324	286	396
1979	291	412	505	389	211	210	260	261	437	276	266	338
1980	340	393	453	174	131	152	224	235	271	421	284	409
1981	248	365	384	397	441	417	313	341	412	218	297	297
1982	395	385	454	245	141	193	94	146	188	345	311	298
1983	137	216	111	147	93	104	110	120	87	150	243	224
1984	143	134	113	142	180	235	247	244	428	217	345	373
1985	420	369	444	566	507	484	394	362	442	226	309	314
1986	392	413	526	549	153	113	172	213	240	266	294	357
1987	317	387	465	665	635	683	543	439	463	249	273	272
1988	385	407	502	682	630	473	475	418	455	324	297	295
1989	416	450	460	654	661	576	445	411	427	226	355	356
1990	480	478	482	689	612	524	459	413	446	284	257	282
1991	409	456	440	577	518	477	425	415	454	317	286	297
Avg	338	378	416	469	391	363	326	313	368	283	290	318

Department of Water Resources, Delta Modeling Section

Table 64
End of Month Salinity
(Values in TDS and Averaged over 25-Hour Tide, Hydrology from DWRSIM Study 472B)

Alternative 3B

Grant Line Canal Upstream of Flow Control Structure Site

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	414	400	439	485	442	484	493	526	433	432	414	486
1977	457	442	484	589	587	572	493	508	435	431	472	511
1978	506	498	534	330	211	163	132	159	213	359	423	368
1979	450	461	468	291	178	181	312	399	399	424	423	453
1980	427	423	447	132	101	131	284	373	231	307	424	377
1981	428	417	379	310	361	348	360	442	428	427	423	479
1982	473	506	439	172	123	134	91	129	169	333	423	294
1983	134	176	106	102	78	79	107	111	78	137	421	215
1984	135	132	101	121	163	218	310	395	387	423	423	434
1985	447	527	470	509	416	404	417	488	427	427	425	479
1986	488	495	498	455	109	94	167	317	204	423	423	433
1987	480	464	477	501	475	474	509	561	434	426	421	485
1988	478	472	584	591	591	556	478	525	435	431	425	501
1989	509	492	578	590	589	489	468	509	439	428	429	483
1990	504	539	582	589	587	536	507	497	444	436	455	500
1991	500	483	608	643	687	396	458	500	433	435	492	510
Avg	427	433	450	401	356	329	349	402	349	392	432	438

Grant Line Canal at West End

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	418	339	440	491	446	495	473	489	480	478	441	495
1977	455	387	485	594	592	581	467	498	482	474	508	524
1978	499	447	537	335	213	163	132	160	219	371	441	374
1979	451	477	469	294	179	182	295	366	415	446	444	463
1980	428	453	448	133	102	132	266	340	238	315	443	384
1981	426	383	380	314	364	351	339	410	458	462	449	489
1982	475	523	442	174	124	136	91	129	174	343	441	296
1983	134	176	106	105	79	81	107	111	78	141	439	217
1984	135	132	101	122	163	219	286	360	403	442	440	443
1985	453	553	473	511	421	409	395	457	451	460	449	488
1986	489	469	500	459	110	95	168	288	209	442	441	439
1987	475	429	475	509	483	491	485	531	477	462	448	498
1988	475	429	585	597	598	563	460	505	483	475	455	517
1989	501	444	580	596	594	494	442	472	509	470	456	488
1990	507	607	579	594	588	545	483	495	516	502	498	515
1991	493	442	605	643	691	399	436	473	470	491	495	526
Avg	426	418	450	404	359	334	333	380	379	423	456	447

Department of Water Resources, Delta Modeling Section

Table 65
Location of 2,000 ppm TDS

(Values in km from Golden Gate - Benicia Assumed to be at 53.1 km)
 (Hydrology from DWRSIM Study 472B)

Alternative 3A

Average Tidal Location at End of Month

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	73.0	76.0	75.3	73.0	67.7	68.8	75.8	79.3	76.9	83.9	88.1	88.4
1977	86.1	88.5	89.0	86.7	71.1	78.8	78.4	78.4	76.5	84.5	87.9	88.4
1978	84.8	87.2	84.2	59.0	58.4	58.2	59.2	62.4	68.1	73.4	81.3	84.3
1979	84.4	84.7	85.1	64.9	59.0	60.4	64.0	70.4	69.4	75.7	84.0	86.5
1980	84.9	82.2	72.3	62.3	54.4	58.3	62.5	65.2	69.1	73.3	81.0	83.6
1981	83.6	85.2	83.6	62.0	61.5	60.8	65.2	77.3	76.4	80.6	86.3	87.7
1982	86.2	61.9	57.1	57.2	54.5	56.4	58.9	59.2	62.3	72.5	79.8	68.3
1983	61.9	59.6	57.0	56.3	53.9	53.9	55.5	57.3	57.2	61.6	72.5	61.9
1984	61.1	57.4	59.7	57.8	59.3	60.3	63.4	67.9	72.7	73.8	78.9	85.3
1985	81.5	62.0	68.3	71.0	67.2	66.6	71.1	73.0	77.5	80.7	85.2	88.0
1986	86.9	86.6	80.7	66.9	69.7	69.7	61.5	66.0	70.2	73.8	79.3	83.9
1987	85.5	86.1	85.3	76.9	62.5	61.5	70.8	80.8	74.9	80.5	86.5	88.1
1988	87.6	87.5	83.4	65.7	69.6	75.0	76.1	78.9	76.9	84.5	88.1	88.7
1989	85.7	88.4	89.2	86.0	71.8	60.6	62.6	70.9	78.4	80.8	85.6	86.4
1990	86.8	86.8	86.0	72.6	69.9	72.2	72.4	79.4	76.7	84.3	88.0	88.6
1991	85.6	88.2	88.7	86.6	71.3	61.8	67.7	78.5	78.5	84.7	87.9	88.5
Avg	81.6	79.3	77.8	69.0	63.9	63.9	66.6	71.5	72.6	78.0	83.8	84.2

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Table 65 (cont.)
Location of 2,000 ppm TDS

(Values in km from Golden Gate - Benicia Assumed to be at 53.1 km)
 (Hydrology from DWRSIM Study 472B)

Alternative 3A

Minimum Tidal Location at End of Month

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	64.5	67.9	66.4	64.8	59.1	60.0	67.6	73.7	69.4	80.1	82.6	83.1
1977	80.1	83.3	83.8	80.6	62.2	72.6	71.8	72.0	69.5	80.1	81.9	83.0
1978	80.1	81.1	80.1	54.3	54.2	53.7	54.1	54.4	59.0	65.1	75.1	80.1
1979	80.1	80.1	80.1	57.1	53.9	53.5	55.4	61.7	60.3	67.4	75.8	80.1
1980	80.1	75.8	63.1	53.9	54.4	54.2	54.4	57.4	59.8	65.3	74.5	80.1
1981	80.1	80.1	80.1	54.0	53.8	54.2	57.0	69.8	68.9	74.5	80.1	82.0
1982	80.1	54.1	53.4	53.8	53.5	53.4	58.9	54.4	54.3	63.9	73.8	59.4
1983	53.9	54.4	53.6	53.9	53.9	53.9	53.8	53.4	53.7	53.7	63.1	54.1
1984	54.4	53.7	59.7	53.6	54.4	54.4	54.4	59.2	63.6	65.1	73.3	80.1
1985	75.8	54.1	59.5	62.2	58.9	58.4	62.4	64.3	70.2	75.1	80.1	82.4
1986	81.2	80.1	75.2	58.9	69.7	69.7	54.0	58.3	61.2	65.6	73.6	80.1
1987	80.1	80.1	80.1	69.4	54.4	53.7	62.2	74.6	66.1	74.4	80.1	82.4
1988	81.9	81.4	80.1	57.4	60.4	66.4	68.3	72.8	69.3	80.1	82.2	83.1
1989	80.1	82.9	83.7	80.1	62.7	53.8	54.4	61.9	72.2	75.2	80.1	80.1
1990	80.2	80.6	80.1	64.0	61.0	63.2	63.2	73.3	69.7	80.1	82.5	83.1
1991	80.1	82.5	83.2	80.2	62.4	54.0	58.9	71.9	72.2	80.1	82.0	83.0
Avg	75.8	73.3	72.7	62.4	58.0	58.1	59.4	64.5	65.0	71.6	77.6	78.5

Maximum Tidal Location at End of Month

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	80.1	82.0	81.5	80.1	75.8	76.6	82.2	84.7	82.6	89.0	93.2	93.6
1977	91.3	93.7	93.7	91.7	78.8	84.3	84.2	83.9	82.8	89.7	92.9	93.3
1978	89.9	92.2	89.1	65.1	64.4	62.3	66.1	71.6	76.0	80.1	87.3	89.6
1979	89.6	89.6	90.0	74.3	65.3	69.3	73.8	78.1	77.4	81.9	89.4	91.5
1980	89.9	87.6	79.7	74.4	54.4	63.3	71.2	74.1	77.0	80.1	86.9	89.0
1981	88.8	90.1	88.5	70.1	69.7	69.7	74.5	83.4	82.2	85.6	91.2	92.6
1982	91.6	69.8	61.7	61.0	57.7	60.3	58.9	65.5	70.6	79.7	85.5	76.0
1983	69.7	66.3	60.5	59.4	53.9	53.9	58.8	62.4	61.1	69.7	79.9	70.1
1984	69.7	61.4	59.7	62.0	65.5	68.2	72.8	76.2	80.0	80.8	84.5	90.6
1985	86.6	69.8	76.1	78.9	75.5	75.6	78.7	80.1	83.2	85.2	90.6	93.2
1986	92.2	92.0	85.9	75.4	69.7	69.7	69.7	74.8	77.7	80.5	84.5	88.9
1987	90.6	91.0	90.4	82.6	71.3	69.7	78.5	86.7	81.1	85.3	91.7	93.0
1988	92.6	92.7	88.4	74.8	77.3	81.1	82.2	84.4	83.0	89.8	92.9	93.5
1989	90.9	93.4	94.1	91.1	79.4	69.5	71.4	78.7	83.8	86.0	90.5	91.7
1990	92.1	92.0	91.2	79.8	77.9	79.5	79.7	85.4	83.0	89.6	93.0	93.4
1991	90.7	93.4	93.6	91.7	78.6	69.7	75.8	84.2	84.0	89.8	92.8	93.8
Avg	87.3	84.8	82.8	75.8	69.7	70.1	73.6	78.4	79.1	83.9	89.2	89.6

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Table 66
Location of 2,000 ppm TDS

(Values in km from Golden Gate - Benicia Assumed to be at 53.1 km)
 (Hydrology from DWRSIM Study 472B)

Alternative 3B

Average Tidal Location at End of Month

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	73.1	76.1	75.4	73.2	67.8	68.8	75.7	79.3	76.9	83.9	88.2	88.4
1977	86.2	88.5	89.0	86.7	71.2	78.8	78.4	78.4	76.5	84.5	87.9	88.4
1978	84.8	87.2	84.3	59.1	58.6	58.3	59.4	62.4	68.1	73.2	81.3	84.4
1979	84.5	84.9	85.2	65.0	59.1	60.6	63.9	70.4	69.5	75.8	84.0	86.5
1980	85.0	82.2	72.3	62.3	54.4	58.1	62.5	65.2	68.9	73.4	81.1	83.8
1981	83.7	85.3	83.8	62.3	61.5	60.9	65.2	77.3	76.5	80.6	86.4	87.7
1982	86.3	61.9	57.1	57.5	54.5	56.4	58.9	59.2	62.4	72.6	80.0	68.5
1983	61.8	59.5	57.1	56.3	53.6	53.6	55.9	58.1	57.3	61.5	72.7	62.0
1984	61.3	57.7	60.2	57.8	59.3	60.4	63.4	68.1	72.7	73.8	78.9	85.4
1985	81.8	61.8	68.4	71.1	67.3	66.6	71.0	73.0	77.7	80.7	85.2	87.9
1986	87.0	86.6	81.1	67.0	69.7	69.7	61.5	66.0	70.3	73.9	79.3	84.0
1987	85.6	86.2	85.4	76.9	62.6	61.5	70.9	81.0	75.0	80.6	86.5	88.1
1988	87.7	87.5	83.6	65.7	69.8	75.0	76.1	79.0	76.8	84.6	88.1	88.7
1989	85.6	88.5	89.2	86.1	71.9	60.1	62.5	71.0	78.4	80.8	85.6	86.5
1990	86.8	86.9	86.0	72.6	70.0	72.2	72.4	79.4	76.9	84.4	88.0	88.7
1991	85.7	88.1	88.7	86.7	71.3	61.7	67.8	78.5	78.6	84.8	87.9	88.5
Avg	81.7	79.3	77.9	69.1	63.9	63.9	66.6	71.6	72.6	78.1	83.8	84.2

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Table 66 (cont.)
Location of 2,000 ppm TDS

(Values in km from Golden Gate - Benicia Assumed to be at 53.1 km)
 (Hydrology from DWRSIM Study 472B)

Alternative 3B

Minimum Tidal Location at End of Month

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	64.7	68.3	66.4	64.9	59.2	60.1	67.6	73.7	69.4	80.1	82.7	82.9
1977	80.1	83.0	83.6	80.4	62.2	72.7	71.8	72.1	69.5	80.1	82.0	83.0
1978	80.1	81.2	80.1	54.3	54.3	54.1	54.1	54.4	58.9	64.6	74.8	80.1
1979	80.1	80.1	80.1	56.7	54.0	53.7	54.6	61.3	60.7	67.4	75.8	80.1
1980	80.1	75.8	63.3	53.9	54.4	54.1	54.4	57.4	60.3	64.8	74.6	80.1
1981	80.1	80.1	80.1	54.2	53.6	54.3	57.6	69.7	68.9	74.6	80.1	81.9
1982	80.1	54.1	53.7	53.8	53.8	53.4	58.9	54.3	54.4	63.1	74.1	59.5
1983	54.0	54.4	53.6	53.6	53.6	53.6	53.8	53.7	53.4	53.8	64.1	54.1
1984	54.4	53.5	60.2	53.6	54.4	55.0	54.4	59.4	63.6	65.5	72.9	80.1
1985	75.8	54.0	59.6	62.4	58.9	58.6	62.2	64.4	70.4	74.7	80.1	82.2
1986	81.1	80.5	75.8	58.6	69.7	69.7	53.2	57.7	61.4	65.0	73.7	80.1
1987	80.1	80.1	80.1	69.7	54.4	53.7	62.2	74.6	66.4	74.4	80.1	82.4
1988	82.2	81.4	80.1	58.0	60.4	66.4	68.3	73.0	69.7	80.1	82.2	83.1
1989	80.1	83.0	83.7	80.1	62.8	54.4	54.4	62.2	72.4	74.9	80.1	80.1
1990	80.5	80.8	80.1	64.0	60.9	63.5	63.3	73.4	69.4	80.1	82.7	83.2
1991	80.1	82.5	83.3	80.2	62.3	54.0	58.9	71.9	72.3	80.1	82.1	83.0
Avg	75.8	73.3	72.7	62.4	58.0	58.2	59.3	64.6	65.1	71.5	77.6	78.5

Maximum Tidal Location at End of Month

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	80.1	82.0	81.9	80.1	75.8	76.7	81.9	84.5	82.6	88.9	93.3	93.6
1977	91.2	93.7	94.0	91.7	78.7	84.3	84.2	83.9	82.8	89.8	92.9	93.3
1978	89.9	92.6	89.2	64.3	63.8	62.3	66.0	70.5	76.2	80.1	87.4	89.4
1979	89.2	89.8	89.9	74.8	66.0	69.4	73.5	78.0	77.1	82.2	89.5	91.6
1980	89.9	87.4	79.5	74.2	54.4	63.8	71.5	74.5	76.7	80.1	87.2	89.0
1981	88.8	89.9	88.9	69.9	69.7	69.7	74.9	83.4	82.2	85.5	91.4	93.1
1982	91.7	69.7	61.7	61.7	57.4	60.2	58.9	65.9	71.2	79.9	85.6	76.3
1983	69.7	66.2	60.7	59.6	53.6	53.6	59.1	62.6	61.6	69.7	80.0	70.3
1984	69.7	61.4	60.2	62.0	65.6	68.1	72.2	76.5	80.1	80.1	84.5	90.2
1985	86.8	69.7	76.5	78.7	75.6	75.5	78.7	80.1	83.5	85.3	90.5	93.1
1986	92.5	91.5	86.1	75.8	69.7	69.7	69.7	75.1	78.0	80.3	84.8	89.1
1987	90.5	91.3	90.5	82.8	71.2	69.7	78.5	87.2	81.1	85.3	92.0	93.4
1988	92.8	92.8	88.5	75.3	77.8	81.2	82.2	84.5	83.0	89.9	92.9	93.6
1989	90.9	93.4	94.1	91.3	79.3	66.3	71.4	78.6	84.2	85.8	90.5	91.7
1990	91.9	92.0	90.8	79.8	78.0	79.6	79.7	85.1	82.6	89.6	92.9	93.8
1991	90.9	93.4	93.6	91.8	78.9	69.7	75.8	84.2	84.0	89.8	92.8	93.8
Avg	87.3	84.8	82.9	75.9	69.7	70.0	73.6	78.4	79.2	83.9	89.2	89.7

Department of Water Resources, Delta Modeling Section

South Delta Water Levels



100

D - 0 0 9 1 0 0

D-009100

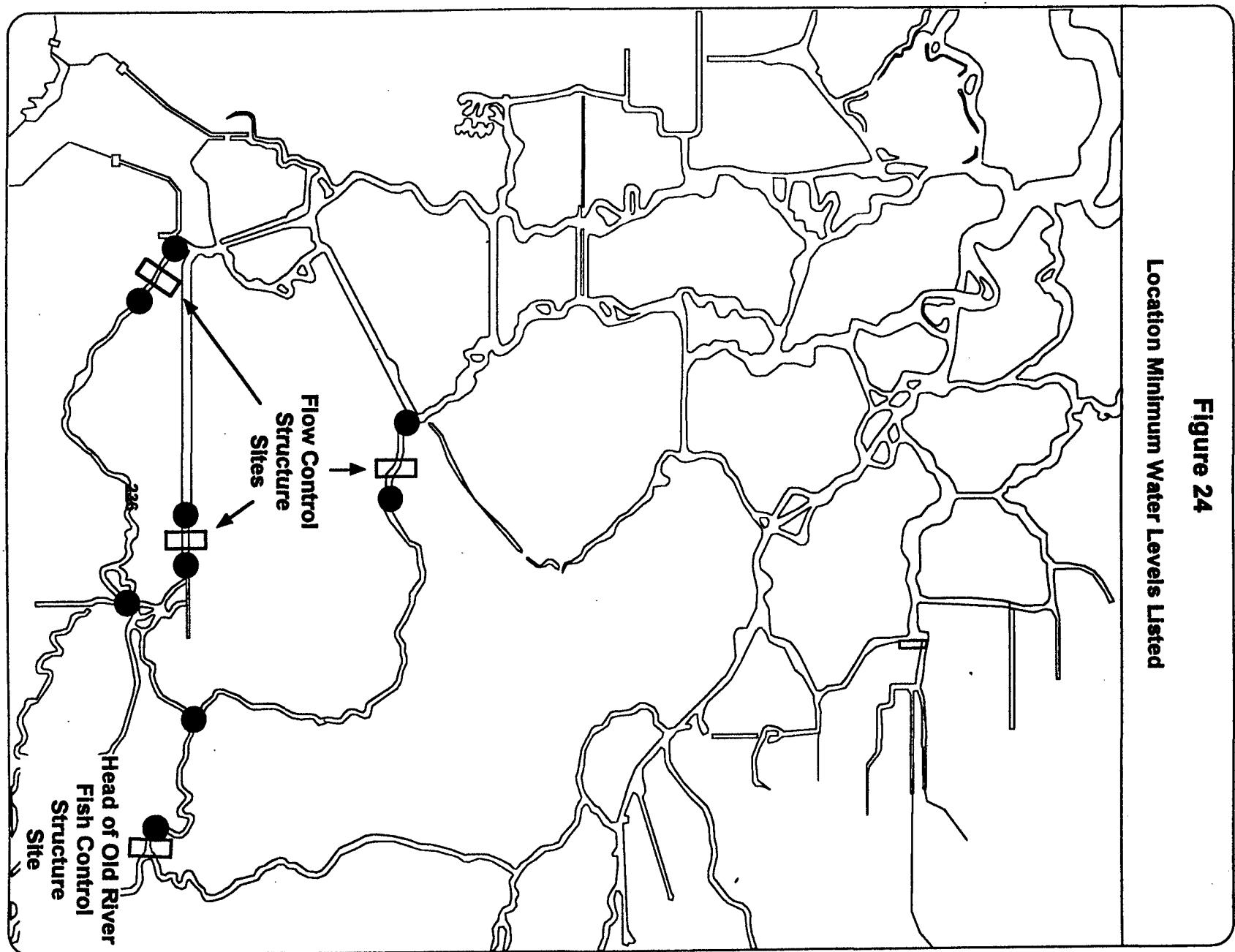


Figure 24
Location Minimum Water Levels Listed

D - 0 0 9 1 0 1

D-009101

Table 67
Minimum Water Levels
(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3A

Middle River Upstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	4.19	4.07	3.85	3.81	3.81	3.60	4.07	4.15
1977	4.13	4.01	4.06	3.84	3.84	3.86	4.00	4.12
1978	3.99	3.99	3.52	3.49	3.49	3.26	4.04	3.24
1979	4.68	4.08	3.96	3.83	3.83	3.61	4.01	4.04
1980	4.99	4.02	3.90	3.44	3.44	3.31	4.05	3.22
1981	4.46	4.17	3.94	3.80	3.80	3.38	3.92	4.06
1982	3.50	3.50	3.87	3.68	3.68	3.29	3.93	3.19
1983	3.01	3.01	2.79	3.56	3.56	4.10	3.76	3.57
1984	4.59	4.03	3.92	3.88	3.88	3.49	3.92	4.06
1985	4.30	4.11	3.95	3.85	3.85	3.37	3.69	4.07
1986	3.56	3.56	3.87	3.55	3.55	3.92	4.04	4.06
1987	4.19	4.06	3.88	3.76	3.76	3.47	4.00	4.12
1988	4.25	4.12	3.98	3.86	3.86	3.85	4.01	4.11
1989	4.29	4.12	3.93	3.82	3.82	3.36	3.75	4.03
1990	4.21	4.08	4.09	3.79	3.79	3.75	3.98	4.10
1991	4.27	4.11	3.94	3.86	3.86	3.83	4.03	4.09
Avg	4.16	3.94	3.84	3.74	3.74	3.59	3.95	3.89

Middle River Downstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	1.81	1.79	1.76	1.60	1.60	1.57	1.58	1.59
1977	1.81	1.78	1.78	1.62	1.62	1.59	1.58	1.59
1978	2.27	2.27	1.98	1.67	1.67	1.62	1.59	1.57
1979	1.94	1.89	1.84	1.62	1.62	1.59	1.59	1.59
1980	1.97	1.90	1.87	1.68	1.68	1.64	1.60	1.59
1981	1.89	1.86	1.78	1.60	1.60	1.54	1.58	1.59
1982	3.37	3.37	2.25	1.74	1.74	1.64	1.60	1.62
1983	2.91	2.91	2.71	3.37	3.37	1.86	1.61	1.74
1984	1.93	1.88	1.84	1.62	1.62	1.58	1.60	1.58
1985	1.86	1.83	1.80	1.60	1.60	1.54	1.56	1.58
1986	2.01	2.01	1.89	1.69	1.69	1.63	1.61	1.58
1987	1.83	1.81	1.75	1.60	1.60	1.55	1.58	1.59
1988	1.82	1.79	1.77	1.63	1.63	1.58	1.58	1.59
1989	1.87	1.85	1.79	1.60	1.60	1.53	1.56	1.58
1990	1.83	1.81	1.78	1.61	1.61	1.57	1.58	1.59
1991	1.85	1.83	1.76	1.62	1.62	1.58	1.58	1.59
Avg	2.06	2.04	1.90	1.74	1.74	1.60	1.59	1.60

Department of Water Resources, Delta Modeling Section

Table 68

Minimum Water Levels
(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3A**Old River Upstream of Flow Control Structure Site**

Year	Apr (1-15)	Apr (16-30)	May (1-14)	Jun (5-30)	Jun (5-30)	Jul	Aug	Sep
1976	3.14	2.84	2.75	2.97	2.97	2.90	3.00	3.01
1977	3.11	2.82	2.83	3.03	3.03	3.00	2.99	3.02
1978	4.22	4.22	3.68	3.47	3.47	3.07	3.02	3.02
1979	3.69	2.87	2.78	3.00	3.00	2.93	3.01	2.99
1980	3.94	2.85	2.77	3.37	3.37	3.16	3.02	3.02
1981	3.40	2.89	2.77	2.97	2.97	2.89	2.97	2.99
1982	4.50	4.50	4.16	3.84	3.84	3.12	2.98	3.16
1983	3.72	3.72	3.43	5.11	5.11	4.49	2.97	3.52
1984	3.65	2.84	2.77	3.01	3.01	2.93	2.98	2.98
1985	3.27	2.87	2.78	3.00	3.00	2.88	2.92	3.00
1986	3.68	3.68	2.77	3.56	3.56	3.03	3.03	2.97
1987	3.13	2.84	2.75	2.95	2.95	2.89	2.99	3.02
1988	3.15	2.86	2.79	3.04	3.04	2.98	3.00	3.02
1989	3.17	2.83	2.77	3.00	3.00	2.88	2.92	2.97
1990	3.13	2.84	2.87	2.97	2.97	2.94	2.99	3.02
1991	3.21	2.86	2.78	3.04	3.04	2.98	3.88	3.01
Avg	3.51	3.15	2.97	3.27	3.27	3.07	3.04	3.05

Old River Downstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May (1-14)	Jun (5-30)	Jun (5-30)	Jul	Aug	Sep
1976	1.89	1.79	1.76	1.49	1.49	1.46	1.47	1.47
1977	1.88	1.78	1.78	1.51	1.51	1.47	1.47	1.48
1978	2.66	2.66	2.24	1.56	1.56	1.51	1.47	1.47
1979	2.10	1.88	1.83	1.51	1.51	1.49	1.48	1.48
1980	2.17	1.90	1.86	1.57	1.57	1.52	1.48	1.48
1981	2.01	1.86	1.78	1.49	1.49	1.44	1.47	1.47
1982	4.34	4.34	2.63	1.61	1.61	1.52	1.49	1.51
1983	3.60	3.60	3.33	4.86	4.86	1.72	1.51	1.63
1984	2.08	1.87	1.83	1.51	1.51	1.47	1.49	1.47
1985	1.96	1.83	1.80	1.49	1.49	1.43	1.46	1.47
1986	2.25	2.25	1.87	1.57	1.57	1.51	1.49	1.48
1987	1.91	1.81	1.75	1.49	1.49	1.45	1.46	1.48
1988	1.90	1.80	1.77	1.51	1.51	1.47	1.46	1.48
1989	1.95	1.84	1.79	1.49	1.49	1.43	1.46	1.47
1990	1.91	1.81	1.79	1.50	1.50	1.46	1.47	1.48
1991	1.94	1.83	1.77	1.51	1.51	1.47	1.46	1.48
Avg	2.28	2.18	1.97	1.73	1.73	1.49	1.47	1.49

Table 69
Minimum Water Levels
(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3A

Grant Line Canal Upstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	2.65	2.11	2.06	3.58	3.58	3.48	3.64	3.66
1977	2.63	2.10	2.10	3.60	3.60	3.62	3.62	3.65
1978	5.33	5.33	4.22	4.80	4.80	3.79	3.69	3.73
1979	3.38	2.17	2.11	3.66	3.66	3.52	3.67	3.66
1980	3.67	2.18	2.12	4.54	4.54	3.97	3.69	3.71
1981	3.01	2.17	2.07	3.59	3.59	3.29	3.61	3.65
1982	7.68	7.68	5.26	5.64	5.64	3.88	3.64	3.98
1983	6.33	6.33	5.88	9.24	9.24	6.85	3.56	4.80
1984	3.34	2.16	2.11	3.68	3.68	3.38	3.64	3.66
1985	2.83	2.15	2.09	3.63	3.63	3.28	3.50	3.65
1986	4.11	4.11	2.13	4.99	4.99	3.68	3.69	3.64
1987	2.66	2.12	2.05	3.56	3.56	3.39	3.63	3.67
1988	2.66	2.12	2.08	3.61	3.61	3.60	3.64	3.66
1989	2.73	2.14	2.08	3.58	3.58	3.26	3.52	3.61
1990	2.66	2.12	2.12	3.56	3.56	3.54	3.61	3.65
1991	2.76	2.14	2.07	3.61	3.61	3.59	3.71	3.64
Avg	3.65	3.07	2.66	4.30	4.30	3.76	3.63	3.75

Grant Line Canal Downstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	2.53	2.07	2.02	1.43	1.43	1.40	1.41	1.41
1977	2.52	2.06	2.06	1.45	1.45	1.41	1.40	1.42
1978	4.83	4.83	3.86	1.49	1.49	1.44	1.41	1.40
1979	3.16	2.14	2.08	1.45	1.45	1.43	1.41	1.42
1980	3.42	2.14	2.09	1.50	1.50	1.46	1.42	1.42
1981	2.84	2.14	2.04	1.43	1.43	1.37	1.40	1.41
1982	7.05	7.05	4.76	1.55	1.55	1.46	1.43	1.45
1983	5.83	5.83	5.42	8.42	8.42	1.65	1.45	1.57
1984	3.13	2.12	2.07	1.45	1.45	1.41	1.43	1.41
1985	2.69	2.11	2.06	1.43	1.43	1.37	1.40	1.41
1986	3.77	3.77	2.10	1.51	1.51	1.45	1.43	1.42
1987	2.54	2.08	2.02	1.43	1.43	1.40	1.40	1.42
1988	2.54	2.08	2.04	1.45	1.45	1.41	1.40	1.42
1989	2.61	2.10	2.05	1.43	1.43	1.36	1.40	1.41
1990	2.54	2.09	2.08	1.43	1.43	1.40	1.41	1.42
1991	2.63	2.10	2.03	1.45	1.45	1.41	1.40	1.42
Avg	3.41	2.92	2.55	1.89	1.89	1.43	1.41	1.43

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Table 70

Minimum Water Levels
(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3A**Old River at Middle River**

Year	Apr (1-15)	Apr (16-30)	May (1-4)	Jun (5-30)	Jun	Jul	Aug	Sep
1976	2.97	2.06	2.00	3.74	3.74	3.63	3.80	3.82
1977	2.95	2.05	2.05	3.74	3.74	3.76	3.77	3.80
1978	7.53	7.53	5.85	5.59	5.59	4.06	3.89	4.02
1979	4.19	2.13	2.06	3.86	3.86	3.65	3.86	3.86
1980	4.70	2.13	2.07	5.20	5.20	4.34	3.88	3.98
1981	3.55	2.13	2.02	3.77	3.77	3.40	3.80	3.83
1982	11.24	11.24	7.48	6.76	6.76	4.20	3.84	4.40
1983	9.24	9.24	8.60	13.78	13.78	8.37	3.68	5.53
1984	4.14	2.11	2.05	3.89	3.89	3.52	3.84	3.90
1985	3.25	2.10	2.04	3.78	3.78	3.39	3.61	3.83
1986	5.60	5.60	2.08	5.85	5.85	3.89	3.89	3.87
1987	2.98	2.07	2.00	3.73	3.73	3.49	3.81	3.83
1988	2.98	2.08	2.03	3.74	3.74	3.76	3.80	3.81
1989	3.09	2.09	2.03	3.71	3.71	3.36	3.66	3.77
1990	2.97	2.08	2.07	3.71	3.71	3.72	3.76	3.80
1991	3.13	2.10	2.02	3.75	3.75	3.74	3.85	3.79
Avg	4.66	3.67	3.03	4.91	4.91	4.02	3.80	3.99

Old River at Head

Year	Apr (1-15)	Apr (16-30)	May (1-4)	Jun (5-30)	Jun	Jul	Aug	Sep
1976	3.30	2.02	1.96	3.82	3.82	3.69	3.91	3.94
1977	3.28	2.01	2.01	3.83	3.83	3.86	3.86	3.90
1978	10.21	10.21	7.94	6.73	6.73	4.38	4.04	4.36
1979	5.15	2.09	2.02	4.03	4.03	3.77	3.99	4.00
1980	5.91	2.09	2.03	6.18	6.18	4.84	4.02	4.29
1981	4.16	2.09	1.98	3.89	3.89	3.50	3.90	3.84
1982	15.48	15.48	10.22	8.38	8.38	4.62	3.98	4.97
1983	12.82	12.82	11.99	18.91	18.91	10.50	3.80	6.56
1984	5.08	2.07	2.01	4.07	4.07	3.68	3.98	4.06
1985	3.72	2.06	2.00	3.91	3.91	3.50	3.72	3.85
1986	7.52	7.52	2.04	7.09	7.09	4.03	4.04	4.02
1987	3.32	2.03	1.96	3.82	3.82	3.58	3.93	3.95
1988	3.32	2.04	1.99	3.83	3.83	3.85	3.91	3.92
1989	3.49	2.05	1.99	3.80	3.80	3.46	3.74	3.87
1990	3.31	2.04	2.03	3.78	3.78	3.78	3.85	3.91
1991	3.53	2.06	1.98	3.85	3.85	3.81	3.91	3.89
Avg	5.85	4.42	3.51	5.62	5.62	4.30	3.91	4.22

Department of Water Resources, Delta Modeling Section

Table 71
Minimum Water Levels
(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3A

Old River at Tracy Road

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	3.01	2.61	2.51	3.49	3.49	3.40	3.55	3.58
1977	2.98	2.59	2.59	3.49	3.49	3.51	3.53	3.56
1978	5.63	5.63	4.62	4.58	4.58	3.68	3.60	3.65
1979	3.70	2.63	2.53	3.56	3.56	3.44	3.58	3.58
1980	4.01	2.61	2.52	4.34	4.34	3.85	3.60	3.63
1981	3.33	2.65	2.53	3.51	3.51	3.20	3.52	3.58
1982	7.19	7.19	5.53	5.33	5.33	3.77	3.56	3.88
1983	5.94	5.94	5.50	8.59	8.59	6.44	3.46	4.61
1984	3.66	2.60	2.53	3.58	3.58	3.28	3.56	3.59
1985	3.17	2.64	2.54	3.52	3.52	3.19	3.41	3.58
1986	4.50	4.50	2.53	4.75	4.75	3.59	3.61	3.57
1987	3.01	2.61	2.51	3.47	3.47	3.29	3.54	3.58
1988	3.02	2.63	2.55	3.50	3.50	3.51	3.55	3.57
1989	3.05	2.59	2.53	3.47	3.47	3.17	3.44	3.55
1990	3.00	2.61	2.64	3.47	3.47	3.45	3.52	3.56
1991	3.10	2.63	2.54	3.50	3.50	3.49	3.97	3.55
Avg	3.89	3.42	3.04	4.13	4.13	3.64	3.56	3.66

Old River at Paradise Cut

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	2.81	2.18	2.12	3.65	3.65	3.55	3.71	3.73
1977	2.79	2.17	2.17	3.65	3.65	3.67	3.68	3.71
1978	5.91	5.91	4.65	4.97	4.97	3.87	3.77	3.82
1979	3.65	2.24	2.16	3.74	3.74	3.57	3.74	3.74
1980	3.99	2.23	2.17	4.69	4.69	4.07	3.77	3.80
1981	3.21	2.24	2.14	3.67	3.67	3.33	3.68	3.73
1982	8.31	8.31	5.84	5.87	5.87	3.97	3.72	4.09
1983	6.86	6.86	6.37	10.04	10.04	7.14	3.59	4.96
1984	3.60	2.22	2.16	3.76	3.76	3.43	3.72	3.75
1985	3.01	2.22	2.15	3.69	3.69	3.32	3.54	3.73
1986	4.52	4.52	2.18	5.17	5.17	3.76	3.78	3.73
1987	2.82	2.19	2.12	3.63	3.63	3.42	3.71	3.73
1988	2.82	2.19	2.14	3.66	3.66	3.67	3.71	3.72
1989	2.89	2.20	2.14	3.63	3.63	3.30	3.59	3.69
1990	2.81	2.19	2.19	3.63	3.63	3.61	3.68	3.71
1991	2.92	2.21	2.13	3.66	3.66	3.66	3.83	3.70
Avg	3.93	3.26	2.80	4.44	4.44	3.83	3.70	3.83

Department of Water Resources, Delta Modeling Section

Table 72
Minimum Water Levels
(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3B

Middle River Upstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	4.19	4.05	3.84	3.83	3.83	3.81	4.07	4.18
1977	4.13	3.99	4.05	3.85	3.85	3.86	4.00	4.13
1978	4.06	4.06	3.55	3.57	3.57	3.26	4.08	3.24
1979	4.75	4.17	3.98	3.95	3.95	3.87	4.05	4.16
1980	5.08	4.20	4.03	3.51	3.51	3.34	4.07	3.23
1981	4.45	4.15	3.93	3.83	3.83	3.74	4.01	4.14
1982	3.57	3.57	3.94	3.77	3.77	3.30	4.07	3.31
1983	3.07	3.07	2.85	3.66	3.66	4.20	4.03	3.61
1984	4.67	4.12	3.96	3.96	3.96	3.83	4.08	4.19
1985	4.30	4.09	3.94	3.86	3.86	3.74	3.97	4.15
1986	3.60	3.60	4.04	3.64	3.64	3.95	4.09	4.21
1987	4.18	4.04	3.87	3.82	3.82	3.79	4.03	4.13
1988	4.24	4.11	3.97	3.86	3.86	3.85	4.01	4.11
1989	4.28	4.11	3.91	3.82	3.82	3.74	3.99	4.18
1990	4.20	4.07	4.08	3.80	3.80	3.82	3.98	4.11
1991	4.27	4.09	3.93	3.86	3.86	3.83	4.03	4.10
Avg	4.19	3.97	3.87	3.79	3.79	3.75	4.04	3.95

Middle River Downstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	1.84	1.81	1.78	1.61	1.61	1.53	1.59	1.60
1977	1.83	1.80	1.79	1.63	1.63	1.60	1.59	1.60
1978	2.27	2.27	1.97	1.67	1.67	1.61	1.59	1.53
1979	1.96	1.90	1.86	1.61	1.61	1.53	1.59	1.57
1980	1.98	1.91	1.88	1.68	1.68	1.64	1.61	1.53
1981	1.92	1.88	1.79	1.62	1.62	1.44	1.57	1.59
1982	3.44	3.44	2.23	1.66	1.66	1.63	1.57	1.51
1983	2.97	2.97	2.76	3.47	3.47	1.81	1.54	1.68
1984	1.95	1.89	1.86	1.63	1.63	1.47	1.57	1.55
1985	1.88	1.85	1.82	1.62	1.62	1.43	1.49	1.59
1986	2.01	2.01	1.89	1.70	1.70	1.63	1.61	1.54
1987	1.85	1.82	1.77	1.60	1.60	1.47	1.59	1.60
1988	1.84	1.81	1.79	1.64	1.64	1.59	1.59	1.61
1989	1.90	1.87	1.81	1.61	1.61	1.43	1.52	1.56
1990	1.85	1.82	1.79	1.62	1.62	1.57	1.59	1.60
1991	1.88	1.84	1.78	1.63	1.63	1.59	1.59	1.60
Avg	2.09	2.06	1.91	1.75	1.75	1.56	1.58	1.58

Department of Water Resources, Delta Modeling Section

Table 73
Minimum Water Levels
(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3B

Old River Upstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	3.14	2.85	2.76	3.08	3.08	2.99	3.07	3.08
1977	3.12	2.82	2.83	3.09	3.09	3.07	3.05	3.08
1978	4.39	4.39	3.77	3.63	3.63	3.16	3.09	3.11
1979	3.75	2.95	2.84	3.12	3.12	3.00	3.08	3.07
1980	4.01	2.95	2.86	3.52	3.52	3.25	3.10	3.10
1981	3.44	2.92	2.78	3.09	3.09	2.89	3.05	3.07
1982	4.69	4.69	4.32	4.00	4.00	3.21	3.08	3.19
1983	3.88	3.88	3.58	5.39	5.39	4.69	3.03	3.62
1984	3.71	2.92	2.84	3.13	3.13	2.94	3.08	3.07
1985	3.28	2.89	2.78	3.09	3.09	2.88	2.98	3.07
1986	3.78	3.78	2.88	3.73	3.73	3.11	3.10	3.06
1987	3.15	2.85	2.76	3.07	3.07	2.93	3.06	3.08
1988	3.16	2.86	2.79	3.10	3.10	3.04	3.06	3.08
1989	3.22	2.87	2.77	3.07	3.07	2.87	3.01	3.06
1990	3.14	2.85	2.87	3.07	3.07	3.02	3.05	3.08
1991	3.22	2.87	2.78	3.10	3.10	3.03	3.90	3.07
Avg	3.57	3.21	3.01	3.39	3.39	3.13	3.11	3.12

Old River Downstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	1.93	1.83	1.79	1.48	1.48	1.40	1.46	1.47
1977	1.92	1.82	1.81	1.50	1.50	1.47	1.46	1.48
1978	2.75	2.75	2.30	1.53	1.53	1.48	1.46	1.40
1979	2.16	1.92	1.87	1.48	1.48	1.40	1.46	1.44
1980	2.23	1.93	1.89	1.54	1.54	1.50	1.48	1.40
1981	2.07	1.89	1.81	1.49	1.49	1.31	1.44	1.46
1982	4.53	4.53	2.70	1.50	1.50	1.50	1.44	1.38
1983	3.77	3.77	3.48	5.14	5.14	1.64	1.41	1.54
1984	2.15	1.91	1.87	1.49	1.49	1.34	1.44	1.42
1985	2.00	1.86	1.83	1.48	1.48	1.30	1.36	1.46
1986	2.31	2.31	1.90	1.55	1.55	1.50	1.48	1.42
1987	1.95	1.84	1.79	1.47	1.47	1.34	1.46	1.48
1988	1.94	1.83	1.80	1.51	1.51	1.46	1.46	1.48
1989	2.01	1.89	1.82	1.48	1.48	1.30	1.40	1.44
1990	1.95	1.84	1.82	1.49	1.49	1.44	1.46	1.48
1991	1.98	1.86	1.80	1.50	1.50	1.46	1.46	1.47
Avg	2.35	2.24	2.02	1.73	1.73	1.43	1.45	1.45

Department of Water Resources, Delta Modeling Section

Table 74

Minimum Water Levels
(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3B**Grant Line Canal Upstream of Flow Control Structure Site**

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	2.67	2.13	2.08	3.63	3.63	3.59	3.67	3.70
1977	2.66	2.12	2.12	3.63	3.63	3.65	3.65	3.68
1978	5.43	5.43	4.30	4.93	4.93	3.85	3.74	3.83
1979	3.45	2.24	2.17	3.73	3.73	3.64	3.72	3.73
1980	3.75	2.25	2.19	4.66	4.66	4.04	3.73	3.81
1981	3.07	2.21	2.10	3.65	3.65	3.52	3.67	3.70
1982	7.79	7.79	5.37	5.80	5.80	3.94	3.73	4.10
1983	6.43	6.43	5.97	9.39	9.39	7.00	3.68	4.90
1984	3.42	2.22	2.16	3.74	3.74	3.60	3.74	3.75
1985	2.85	2.18	2.11	3.66	3.66	3.52	3.62	3.70
1986	4.19	4.19	2.20	5.13	5.13	3.73	3.74	3.74
1987	2.69	2.14	2.07	3.63	3.63	3.55	3.68	3.70
1988	2.68	2.14	2.10	3.64	3.64	3.63	3.67	3.69
1989	2.79	2.18	2.10	3.61	3.61	3.50	3.63	3.68
1990	2.68	2.14	2.14	3.61	3.61	3.60	3.64	3.68
1991	2.78	2.16	2.09	3.64	3.64	3.61	3.73	3.67
Avg	3.71	3.12	2.70	4.38	4.38	3.87	3.69	3.82

Grant Line Canal Downstream of Flow Control Structure Site

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	2.56	2.09	2.04	1.42	1.42	1.34	1.40	1.41
1977	2.54	2.08	2.08	1.44	1.44	1.41	1.40	1.41
1978	4.94	4.94	3.94	1.46	1.46	1.41	1.40	1.33
1979	3.24	2.20	2.13	1.42	1.42	1.33	1.40	1.38
1980	3.49	2.21	2.15	1.47	1.47	1.44	1.41	1.33
1981	2.90	2.17	2.06	1.43	1.43	1.24	1.38	1.40
1982	7.17	7.17	4.88	1.43	1.43	1.44	1.38	1.30
1983	5.93	5.93	5.51	8.59	8.59	1.56	1.34	1.47
1984	3.20	2.19	2.13	1.43	1.43	1.27	1.37	1.36
1985	2.72	2.15	2.08	1.42	1.42	1.23	1.29	1.40
1986	3.85	3.85	2.16	1.48	1.48	1.44	1.42	1.35
1987	2.57	2.11	2.04	1.41	1.41	1.27	1.39	1.41
1988	2.57	2.11	2.06	1.45	1.45	1.40	1.40	1.42
1989	2.67	2.15	2.07	1.42	1.42	1.23	1.33	1.37
1990	2.57	2.11	2.10	1.43	1.43	1.38	1.40	1.42
1991	2.65	2.13	2.06	1.44	1.44	1.40	1.40	1.41
Avg	3.47	2.97	2.59	1.88	1.88	1.36	1.38	1.39

Department of Water Resources, Delta Modeling Section

Table 75
Minimum Water Levels
(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3B

Old River at Middle River

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	2.99	2.09	2.02	3.75	3.75	3.75	3.82	3.85
1977	2.97	2.07	2.07	3.76	3.76	3.78	3.79	3.82
1978	7.59	7.59	5.90	5.70	5.70	4.10	3.92	4.12
1979	4.26	2.20	2.11	3.92	3.92	3.82	3.89	3.90
1980	4.76	2.20	2.13	5.31	5.31	4.39	3.91	4.08
1981	3.60	2.17	2.04	3.79	3.79	3.70	3.84	3.86
1982	11.30	11.30	7.55	6.90	6.90	4.25	3.92	4.53
1983	9.29	9.29	8.65	13.84	13.84	8.47	3.87	5.62
1984	4.21	2.18	2.11	3.93	3.93	3.81	3.93	3.94
1985	3.27	2.14	2.06	3.80	3.80	3.70	3.80	3.86
1986	5.66	5.66	2.15	5.96	5.96	3.91	3.92	3.93
1987	3.00	2.10	2.02	3.76	3.76	3.73	3.84	3.85
1988	3.00	2.10	2.05	3.76	3.76	3.78	3.83	3.83
1989	3.15	2.13	2.05	3.73	3.73	3.68	3.79	3.83
1990	2.99	2.10	2.10	3.73	3.73	3.75	3.78	3.83
1991	3.15	2.12	2.04	3.77	3.77	3.76	3.87	3.81
Avg	4.70	3.72	3.07	4.96	4.96	4.15	3.86	4.04

Old River near Head

Year	Apr (1-15)	Apr (16-30)	May	Jun (1-4)	Jun (5-30)	Jul	Aug	Sep
1976	3.32	2.05	1.98	3.84	3.84	3.83	3.92	3.96
1977	3.30	2.03	2.04	3.84	3.84	3.87	3.88	3.92
1978	10.24	10.24	7.98	6.81	6.81	4.40	4.07	4.43
1979	5.20	2.16	2.07	4.10	4.10	3.95	4.02	4.05
1980	5.96	2.16	2.09	6.26	6.26	4.88	4.04	4.36
1981	4.21	2.13	2.00	3.91	3.91	3.80	3.95	3.98
1982	15.51	15.51	10.25	8.48	8.48	4.63	4.07	5.09
1983	12.84	12.84	12.01	18.94	18.94	10.57	4.00	6.64
1984	5.14	2.14	2.07	4.12	4.12	3.95	4.08	4.12
1985	3.73	2.10	2.02	3.93	3.93	3.80	3.92	3.98
1986	7.55	7.55	2.11	7.18	7.18	4.05	4.06	4.10
1987	3.33	2.06	1.98	3.85	3.85	3.83	3.95	3.97
1988	3.33	2.06	2.01	3.85	3.85	3.86	3.93	3.94
1989	3.54	2.10	2.01	3.81	3.81	3.76	3.89	3.94
1990	3.32	2.06	2.06	3.79	3.79	3.81	3.86	3.93
1991	3.55	2.08	2.00	3.86	3.86	3.83	3.93	3.91
Avg	5.88	4.45	3.54	5.66	5.66	4.43	3.97	4.27

Department of Water Resources, Delta Modeling Section

Table 76

(Datum Mean Lower-Low Water, Hydrology from DWRSIM Study 472B)

Alternative 3B**Old River at Tracy Road**

Year	Apr (1-15)	Apr (16-30)	May (1-4)	Jun (5-30)	Jun (5-30)	Jul	Aug	Sep
1976	3.02	2.62	2.52	3.52	3.52	3.50	3.58	3.61
1977	3.00	2.60	2.60	3.52	3.52	3.54	3.55	3.59
1978	5.75	5.75	4.69	4.71	4.71	3.75	3.64	3.75
1979	3.77	2.72	2.60	3.62	3.62	3.55	3.63	3.63
1980	4.08	2.72	2.62	4.46	4.46	3.92	3.64	3.73
1981	3.39	2.68	2.54	3.54	3.54	3.43	3.59	3.61
1982	7.31	7.31	5.67	5.49	5.49	3.83	3.64	3.99
1983	6.04	6.04	5.58	8.75	8.75	6.59	3.60	4.71
1984	3.73	2.69	2.60	3.63	3.63	3.51	3.64	3.65
1985	3.18	2.66	2.55	3.55	3.55	3.43	3.54	3.61
1986	4.58	4.58	2.64	4.89	4.89	3.64	3.65	3.65
1987	3.02	2.61	2.52	3.52	3.52	3.46	3.59	3.61
1988	3.04	2.64	2.56	3.53	3.53	3.54	3.58	3.60
1989	3.11	2.64	2.53	3.50	3.50	3.41	3.55	3.60
1990	3.02	2.61	2.65	3.50	3.50	3.51	3.55	3.59
1991	3.11	2.64	2.54	3.53	3.53	3.52	3.98	3.58
Avg	3.95	3.47	3.09	4.20	4.20	3.76	3.62	3.72

Old River at Paradise Cut

Year	Apr (1-15)	Apr (16-30)	May (1-4)	Jun (5-30)	Jun (5-30)	Jul	Aug	Sep
1976	2.82	2.20	2.14	3.68	3.68	3.66	3.74	3.76
1977	2.81	2.19	2.19	3.68	3.68	3.70	3.71	3.74
1978	6.00	6.00	4.73	5.10	5.10	3.93	3.81	3.92
1979	3.72	2.31	2.22	3.79	3.79	3.71	3.79	3.79
1980	4.06	2.31	2.24	4.81	4.81	4.13	3.80	3.90
1981	3.27	2.28	2.15	3.70	3.70	3.60	3.75	3.76
1982	8.41	8.41	5.92	6.03	6.03	4.03	3.81	4.22
1983	6.94	6.94	6.45	10.17	10.17	7.28	3.76	5.07
1984	3.68	2.29	2.22	3.80	3.80	3.68	3.81	3.81
1985	3.03	2.25	2.17	3.71	3.71	3.59	3.70	3.76
1986	4.60	4.60	2.26	5.31	5.31	3.80	3.82	3.81
1987	2.83	2.21	2.13	3.68	3.68	3.63	3.75	3.76
1988	2.84	2.21	2.16	3.68	3.68	3.70	3.74	3.74
1989	2.95	2.25	2.16	3.66	3.66	3.58	3.70	3.74
1990	2.83	2.21	2.16	3.66	3.66	3.67	3.70	3.74
1991	2.94	2.23	2.15	3.69	3.69	3.68	3.85	3.73
Avg	3.98	3.31	2.84	4.51	4.51	3.96	3.77	3.89

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